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Forestry

TWENTY-SECOND YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

Vol. XXII, No. 4 FEBRUARY, 1946 $2.00 a Year

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Owned and Published by
Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.

Eastern Representative: C. A. Larson, 254 West 31st St., New York 1, N. Y.; Phone Penna. 6-9049

By Lawrence H. Singer

Sound Advice—Sensible suggestions on the proper approach toward trade with Latin America are offered to our manufacturers by Paul Moss, former sales manager of Bendix International Co., who is now engaged in running his own export firm. He contends that small American producers should strengthen their hold on trade with our neighbors to the south by licensing companies in those countries for the production of many articles.

Skilled technicians should be sent to South American factories, Moss advises, to assist in training employees there in the manufacture of our goods. In this way, he declares, the small manufacturer would keep an outlet for his products, even though import controls might appear in the years ahead.

Among the consumer goods that could be assembled in this way are such items as radio receivers and electric refrigerators. As Moss sees it, the motor and compressor units could be manufactured here, while the cabinets and wiring could be installed locally. This procedure, in part, was successfully followed by Nazi Germany before the war in trading with Latin America.

* * *

Delay in Building—Although the total volume of all types of new construction may pass the seven billion-dollar figure this year, many observers believe that the peak will not be attained until about 1949. Serious reconversion and supply problems continue to hamper many branches of the industry.

Charles E. Young, economist of Westinghouse Electric, has estimated that private building this year will rise to five billion dollars, with another two billions being represented by public works and other publicly-financed construction. This total would represent an impressive increase of 60% over the 1945 volume.

As Young points out, a large proportion of future construction has not yet reached the planning stage. But, looking ahead to the period of 1949 to 1951, he predicts that expenditures for new building of all kinds should average *fifteen billions a year.* There is one big *if* attached to this forecast: price levels must not rise unduly!

* * *

Natural Rubber—In the view of Robert S. Wilson, former director of the Rubber Bureau of the War Production Board, natural rubber is due to make a comeback in meeting peacetime needs, despite the dramatic advance made by synthetic during the war.

He expects that the natural product will appear first in those operations where it is needed for quality reasons. For example, it is generally agreed that better per-

(Continued on page 6)

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formance could be obtained from truck tires by using a tangible percentage of natural rubber in the formulation. On the other hand, the need is not nearly so great in the case of tires for passenger cars.

Pointing out that the new synthetic industry is now geared to produce 1,200,000 tons a year, Wilson warns that the job of integrating the synthetic rubber industry with the new supplies which will be once more available from the Far East, is one of the most momentous problems facing our country. It is startling to reflect that the use of synthetic stock in rubber products has increased from a negligible 1% in 1941 to 85% in 1945.

* * *

Colored Textiles—We have been reading for months about Russia's success in cultivating colored cotton. According to *Business Week*, Soviet authorities will soon be pushing colored textiles as a novelty in foreign markets, despite disparaging reports from textile experts in this country. Although the brown variety has been the most successful, it is understood that Russia can also grow yellow, green, pink and blue cotton on a quantity basis. Savings on dyeing alone are believed to reduce fabric costs by 20%.

* * *

Scandinavian Prospects—According to Hans G. Tonndorf, the eminent Swedish economist, his country has an exchange reserve amounting to 500 million dollars available for foreign trade. He declares that Sweden will be turning to our country for substantial quantities of the heavy machinery, metals, chemicals and textiles

(Continued on page 10)

Binks Model 9 Spray Gun

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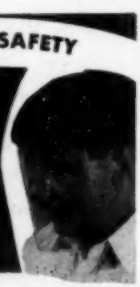

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which she formerly purchased from Germany.

Despite the fact that Sweden is in the sterling area, Mr. Tonndorf anticipates no serious difficulties in importing merchandise from the United States. His country is a low-tariff nation, it is explained, with customs duties averaging less than 10% on imported goods.

Exporters are strongly in favor of the earliest possible return to a free world economy, according to Tonndorf. They are opposed to bilateral and other discriminatory trade practices, he adds, and that attitude is also the official policy of his government.

* * *

Not Satisfied — Some striking thoughts on public disapproval of radio advertising presentations are contained in a report issued by the Sylvania Electric Co. Querying FM Radio set owners on why they prefer FM broadcasting, almost half replied that they like it because "less advertising" interrupts the programs. Next in order of importance were "less static" and "greater realism."

* * *

New Horizons—"Recent developments have made vinylite plastic a new medium for expression in consumer merchandise," according to Allan Brown, of the Bakelite Corp. Among the products envisioned in the years ahead are vinylite raincoats, baggage, pillows, hats and shoes.

Made from four basic raw materials—natural salt, gas, calcium carbide and water—the products evolve from a resin that has the appearance of flour when it is delivered to the plant, and of dough after the material has been blended

(Continued on page 136)

Forestry
St
3-4-47

in INDUSTRIAL FINISHING

BY GILBERT C. CLOSE

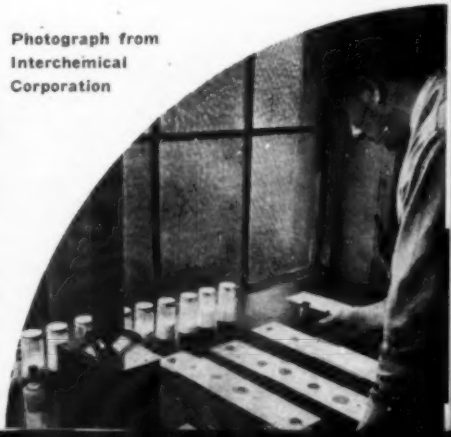
The author names certain types of synthetic materials and tells what special merits and characteristics they impart to protective and decorative coatings for all new products.

INDUSTRIAL FINISHERS as a group are evincing a lively interest in the many new synthetic coating materials currently available. This interest is generally boiled down into a single all-encompassing question: "Just what is the status of these new materials in conjunction with industrial finishing?"

This question cannot be answered with a single statement. To begin with, some clarification must be made of the term "plastic coating material" so copiously used by both manufacturers and users of these synthetic materials. Use of the word "plastics" in conjunction with any finishing material is entirely wrong from the dictionary standpoint. The fact remains, however, that this term has come into common use to denote many of the synthetic resins and oils employed in the finishing industry. Use of the word should be discouraged, and manufacturers of synthetic products should refrain from naming such products in a manner to indicate that they are "plastic" in composition.

Another common misconception is to believe that there is a sharp distinction between "synthetic finishing materials" and so-called "organic finishing materials." Here again popular usage has established misunderstanding. Both materials are purely organic in nature. The newer synthetic finishing materials, however, are produced by actual combination of natural materials to form a new product, while the oils and resins formerly used were in their natural refined state.

The development of synthetic finishing materials gave the industrial finisher three types of finishing compounds with which to work—



Photograph from Interchemical Corporation

the natural organic materials, the natural materials with more or less synthesized materials in their make-up, and pure synthetic materials with no natural resins or oils in their make-up.

The above will indicate that the mis-termed "plastic" finishes are actually nothing more than synthesized organic finishes, and should dispel the too prevalent fear among laymen finishers that they are "missing a bet" by not adopting the former for all their finishing work.

The hundreds of synthetic coating materials available makes it impossible to describe each one separately. These hundreds of materials, however, may be conveniently classified into a relatively few chemical categories, each with distinctive characteristics. By attacking the problem in this manner, a fairly comprehensive picture of the field is obtained. Such information, though incomplete from the standpoint of the synthetic plastics engineer, is of immense value to the industrial finisher who wants to know a bit more about the materials at his command.

The synthetic coating materials of paramount interest to the industrial finisher are:

1) Urea resins.
2) Phenolic resins.
3) Vinyl resins.
4) Acrylic coatings.
5) Chlorinated rubber coatings.

For the sake of clarity, each will be discussed separately in the following text. Chemical composition will be largely ignored in favor of principle uses, merits, and limitations of each.

The urea resins are compounded by combining urea or thiourea with formaldehyde or other aldehydes. The term "urea" is used by the paint trade to designate not only the pure urea-formaldehyde compositions, but compositions modified by inclusion of alkyd and other resins. There are both water-soluble and organic-soluble ureas, the former commonly employed for plastics, adhesives, textile treatment, etc., whereas the latter have found their widest use in organic coating material compositions.

Urea Resins; What They are; Their Characteristics and Uses

Urea resins are of the thermosetting variety and, generally in varying combinations with the alkyd resins, find their major application as a surface coating in the form of baking enamels. The urea-alkyd ratio in such enamels may be varied to obtain specific effects. A high urea ratio is employed to accelerate baking speed and to improve hardness and color retention, while a high alkyd ratio will improve adhesion and distensibility.

Enamels based on the urea-alkyd formula are baked at temperatures ranging from 250° to 350° F., although this range is not critical. When used over light metals, such as aluminum or magnesium, the baking temperature should not exceed 300° F., or harm to the metal temper may result. When properly formulated and baked, the color retention and mar resistance while hot is markedly superior to prior-type natural oil varnishes or pure alkyd resin compositions. In this connection, baking speed and mar resistance while hot are of vital importance in the industrial finishing field as both contribute greatly to production speed and also as to a minimizing of rejects.

The hardness, baking speed and color retention properties of the urea-alkyd combinations, as well as their high resistance to grease and humidity, have led to their adoption for baking enamels in the white or pastel tints. White enam-

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Yarnall's Southern Virginia and Northern North Carolina territory is covered by George Parker who has been in the protective coatings industry for 37 years. He joined the Yarnall organization in 1912, is married to Marjorie Satterwhite and has two sons, Robert Lee Parker and George E. Parker, Jr. Robert Lee was a Lieutenant in the Army and George a Lieutenant in the Marine Corps. They both served in the Pacific Theater during the war.

His long experience in the industry makes him invaluable to both Yarnall and their customers. His hobbies are horse shoe pitching, bridge and gin rummy, and according to his opponents he is pretty good at all three.

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els of this category are commonly employed for such products as refrigerators, stove parts, kitchen and bathroom cabinets, washing machines, hospital equipment and ware, and many kinds of decorative metal novelties. In the pastel tints, the ureas are extensively employed in coating metal furniture, bicycles, toys, and similar products.

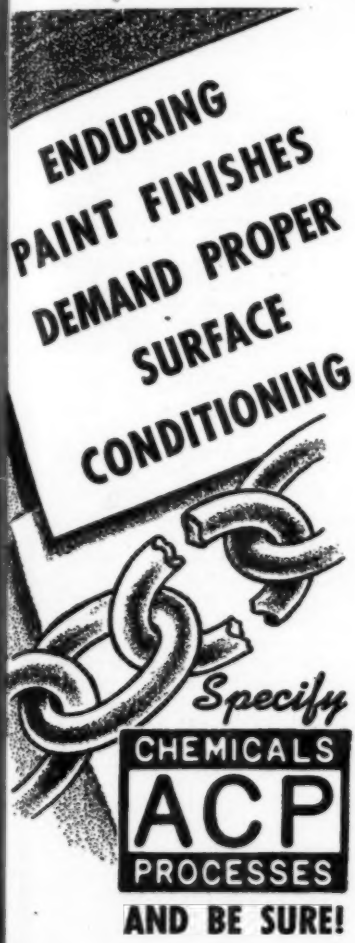
Application of the ureas is not confined to metal only, but may be accomplished on other materials that will withstand the requisite baking temperatures. They are widely used for coating products fabricated from the darker plastics to improve appearance.

Clear urea finishes for use on wood furniture and similar products, where the baking temperature must not exceed 150° F., are now available. The low temperature baking property is obtained by special catalytic additives. In addition, the organic-soluble ureas are finding use in certain of the nitrocellulose lacquers, in printing inks, and in floor covering materials.

Phenolic Resins Include Two General Types

Though the phenolic resins have been known for some time, war in the Orient during the middle 30's was responsible for spurring their use in finishing materials. When the supply of imported oils was suddenly curtailed, the paint manufacturers tried domestic natural

The photograph from which this illustration was made, was loaned to I. F. by Beckwith-Chandler Co. who says: "This shows our method of maintaining control of various pigments at all times, to insure the uniformity of color and tint in our automotive and industrial lacquers and enamels."



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oils but soon found that these products would not meet the public demand for quick-drying, highly resistant enamels. This condition focused attention on the synthetic resins and oils. It was quickly discovered that the phenolic resins offered the qualities of durability, toughness, chemical resistance, and gloss retention that the consumer demanded.

There are two general types of phenolic resins. One type, a molding compound resin, is highly insoluble in oil unless first dispersed in rosin. Even then a great amount of rosin must be employed to give the oil a very small phenolic content. A coating material compounded in this manner is very hard, but offers little resistance to boiling water or chemicals.

The second type of resin, the pure phenolic-formaldehyde composition, is highly oil-soluble when properly processed. This resin, in combination with the softer, slower drying oils, produces a finish with high resistance and durability, but with slow drying characteristics.

The first step in the production of phenolic resin coatings was to combine the two types of phenolic resins in proper proportions to obtain desired properties. This combination made possible substitution of linseed oil-phenolic resin, varnishes for the older tung oil-ester gum varnishes, with no sacrifice in characteristics. This was but the first step, however, and the product was not excessively superior to the older type finishes.

Subsequent research and improvement soon widened the gap of superiority between the phenolic finishes and the older oil-base coatings. Isomerified terpene-phenolic resins were introduced, with materials of a terpene nature replacing the formaldehyde constituent of the phenolic-formaldehyde composition. This gave rise to a series of finishes very hard and brittle in nature. In fact, the superior qualities evinced made possible production of floor varnishes and floor paints with linseed oil as the major oil constituent.

The terpene-phenolics reinstated production of a line of "4-hour" varnishes for shelf goods without use of imported oils. At the same time, the terpene-phenolic characteristics suited them ideally to the industrial finisher's needs.

A brief survey of the properties of the phenolics is the best indication of their tremendous value to the finishing industry. Drying speed is one of the most potent qualities of phenolic resin finishes. Exterior air-drying finishes are available that will dry thoroughly in from four to five hours; other drying speeds vary downward to anti-corrosive primers which will air-dry in one minute. Durability is another requirement in which the phenolics excell. The older type fossil resin or resin-ester gum spar varnishes will show marked deterioration after 90 days' exposure at 45° facing the sun; panels prepared for the same experiment, using one type of phenolic resin varnish and tested under the same conditions, had not lost their gloss after nine months of exposure.

Drying Speed; Flexibility; Resistance to Moisture

Water and moisture resistance is a "must" for any acceptable finishing material, and the phenolics exhibit this characteristic to an extreme degree. In fact, this property excells that of any finish available as little as ten years ago. In line with moisture resistance, the chemical resistance of phenolic coatings has been well illustrated both by experiment and under all service conditions. *(To page 34)*

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Triad Emulsion Cleaners quickly and easily remove buffing, lapping and drawing compounds, as well as magnaflux, in metal parts washers or still tanks. In addition, temporary rust protection of metal parts between machining is provided.

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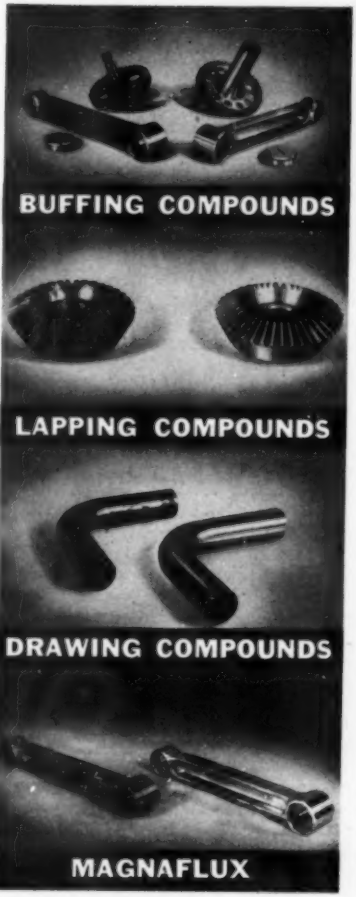

DETREX CORPORATION

DETROIT, MICHIGAN

A-109

A common test for chemical resistance is to immerse coated panels in a 5% solution of caustic soda. Most fossil resins, resin derivatives, and many synthetic resins are quickly dissolved in this solution. Spar varnishes based on the phenolic formula are available that will withstand attack from the caustic for 8, 24, and 48 hours respectively.

Retention of flexibility after baking and aging is one property that makes phenolic resins highly desirable from the industrial standpoint. This retention of flexibility is due to the fact that these resins dry into a completely polymerized, inert film.

Perhaps the greatest tribute the phenolic resin finishes have received was their acceptance during the recent war. They were not only on a high priority basis, but were completely absorbed by defense industry and practically unavailable for civilian use. A long list of specifications, dating from the early V-10 specification covering naval aircraft spar varnish were written to cover the properties of the phenolic resin films. The demand was so great that manufacturers had to seek new raw material sources, and even new materials before the war ended. Ship hulls, submarine surfaces, tanks, jeeps, gun barrels, caissons and shell cases, all subjected to the most extreme service conditions imaginable, were protected by phenolic resin coatings.

Vinyl Resins are Entirely Synthetic in Character

In discussing the vinyl resin coatings, we are leaving for the first time combinations of synthetic materials with natural organic materials to form the finished product. Vinyl coatings are entirely synthetic in character. Copolymer vinyl resin is not an ordinary lacquer resin in the sense that it cannot be added to the common cellulose lacquers. It is an entity in itself, and employed as the sole film-forming ingredient in a series of products having a technology all their own.

There are numerous vinyl resins available, but by far the most important as a coating material is copolymer vinyl chloride-vinyl acetate resin. This resin is of the permanently thermoplastic variety and is characterized by toughness, strength, and inertness to most chemicals. When employed as a coating material, it is not in combination with the common drying oils and resins known to the trade, but is handled in a volatile solvent much in the manner as lacquers. The vinyl resin coatings all dry entirely by solvent evaporation; oxidation and post-polymerization are not involved.

These Bake Finishes Have Many Desirable Properties

The resin itself is colorless, tasteless, odorless, and non-toxic. These properties bear sharply on its use. The vinyl resin coatings are highly resistant to the aliphatic hydrocarbons, greases, oils, waxes, alcohols, and similar compounds, but are dissolved by the lower organic acids, the keytones, aldehydes, nitro-paraffins and chlorinated hydrocarbons. Moisture and water resistance of the coatings is high at temperatures below 212° F., but diminishes rapidly if this temperature is exceeded.

The vinyl resin solution may be applied by any of the conventional methods such as dipping, spraying, roller coating, etc. Brushing is not recommended, as the solvent may affect undercoats. When thicker coatings are desired, they may be applied by lamination of thin films, or by calendaring. Baking is re-

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quired for maximum adhesion. Recommended baking temperatures for the material involved should be rigidly followed.

Due to the properties previously mentioned, the vinyl resin coatings have found wide application in the food and processing and packaging industries. The well-known "Keg-lined" beer cans are an example. Containers for wine, grape juice, apple juice and similar products are treated in the same manner. Vinyl resin calendar-coated paper is widely used as liners for bottle and jar caps, and for enclosures containing foods, medicines, cosmetics, etc. The vinyl films will withstand severe forming operations, and have been employed for coating aluminum foil to be used as food wrappers.

Paper labels coated with high-gloss vinyl resin materials not only offer eye-appeal, but are extremely resistant to oil and grease, the alcohols, and most of the alkalis.

Resistance to Abrasion, Moisture and Chemicals

From the more purely industrial standpoint, the vinyl coatings offer good appearance, and at the same time are wear and abrasion-resistant. They are not affected by caustic moisture conditions so detrimental to most natural organic films. This property makes them ideal for use over cement and concrete, and other products such as cement-asbestos wallboard where caustic conditions prevail. This same chemical resistance suits them for use as stop-off lacquers in electro-plating baths, for coating the interiors of pipes that will carry corrosive liquids, and for lining of processing equipment and storage tanks.

Other industrial applications include exuded coatings for electric wiring, impregnation of cork and pulp paper, over-finishes for plastics, and coatings for leather and rubber products. Emulsified vinyl resin solutions are widely employed for coating porous surfaces such as wallboard and other pulp products, anchoring tile fabrics, and permanent textile glazing.

Acrylic Resin Finishes are Resistant to Discoloration

The acrylic resins, though limited in use to date, have been found very proficient in serving specific purposes. The acrylic films are water-white in color, perfectly transparent, and highly resistant to discoloration. They also resist attack by water and moisture, vegetable acids, mineral oil, alcohols, and most chemical fumes. These resins are supplied in solution in aromatic hydrocarbons, esters or keytones. The main objection to the acrylics for any purpose is their high cost.

When reduced to the proper viscosity, acrylic coatings may be applied by machine coating, dipping, spraying or brushing. Recoating is difficult except by spraying. for the original acrylic film remains soluble in the solvent of the new film being applied.

Principal use for the acrylic resins is in white enamels that must withstand high temperatures without discoloration. They are also employed on metals where protection from gasoline, vegetable and mineral oils, and salt water is important. In metal applications, the best results are obtained by forced drying or baking.

The softer acrylic resins are sometimes used in base coats for textiles, and in rubber lacquers. One specific use is to prevent silver from tarnishing. Other tarnishable metals that may be protected from surface attack by an

KNOCKING THE *Spots* CLEAN OFF!

SUN SPIRITS . . . Eliminates Stains on High-Finish Metal

A manufacturer who required a high finish on machined-parts was using an ordinary petroleum solvent for cleaning.

Stains appeared on the metal wherever drops of the slow-drying solvent had hung on without evaporating. As a result, an excessive number of parts was being rejected.

Rejections were completely eliminated after Sun Spirits was introduced for metal-cleaning. The new cleaning-process with Sun Spirits has really knocked the spots off the old-time record.

Sun Spirits is a highly refined solvent. Volatility is carefully controlled to insure prompt, even evaporation. Chemical analysis is held to exacting limits to produce spotless work.

Hundreds of plants use Sun Spirits for metal-cleaning, because of its quality, and because it also provides an easy, one-step cleaning-process, which is both reliable and economical. Call the Sun man near you for further information. Or write . . .

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INDUSTRIAL PRODUCTS

acrylic film include zinc, copper, chromium, aluminum and the stainless steels.

Chlorinated Rubber, Plus Other Materials . . .

Chlorinated rubber is really an additive which, in combination with certain resins, especially phenolic resins, will achieve properties not previously available in any type of finishing material. Coatings formulated in this manner exhibit immunity or near immunity to almost all agents commonly destructive to paint films due to chemical action. This includes not only powerful corrosives such as 50% sodium hydroxide solutions and 45% nitric acid solutions, but also such corrosives as moisture, mildew, alkalis, soaps, mold, cement alkali and plaster lime.

In itself, chlorinated rubber is odorless, tasteless, non-toxic, non-inflammable, and will yield clear, haze-free solutions. The resins, pigments, plasticizers and solvents used with chlorinated rubber must be selected and blended with specific end-use in mind. Finishes compounded in this manner are air-drying, and find wide use on structures that require the ultimate in protection yet are too large for baking.

Useful for Painting Cement, Plaster, Stucco and Tile

One of the most important uses for chlorinated rubber coatings is for painting alkaline surfaces such as cement, plaster, stucco, tiles and various cement boards. Chlorinated diphenyl plasticizers and alkali-resistant phenolic resins are blended with the chlorinated rubber to achieve desired results. Such coatings may be applied immediately to newly dried concrete, thus

View in organic laboratory. Photo, courtesy of Celanese Corp. of America.

INVESTIGATE SILCO

THE GLASS-BASE PROTECTIVE SPRAY COAT

And Get a Surprise!

In color, texture and durability, SILCO stands absolutely alone. As a finish for steel and brass, its applications are beyond calculation! Though sprayed on, when baked it soon takes on the hardness of GLASS!

SILCO withstands heat up to 1000° F., is impervious to dampness and corrosive gases, and has extremely high resistance to abrasion and impact. It comes in any color you name, and in two pleasing eggshell finishes. SILCO is very easy to work. Spray it on and dry it at 200° F. Then bake it in any industrial oven at 350° F. The result will amaze you! Sample and details on request.

BLACK MAGIC

***DEEP PENETRATING* 1-BATH OXIDE BLACK FOR STEEL AND IRON**

This single bath gives iron and all steels except stainless a dense, permanent black that won't rub off (penetration .0001"). Very flexible; products may be formed after processing. Also an effective rust inhibitor and a fine bond for paints and lacquers. Chemical reaction at 300° F. There are also BLACK-MAGIC baths for zinc, copper, brass and cadmium. Sample and details on request.

Improved Finish for

MOTORS
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SILCO Glass-Base PROTECTIVE COATING
HEAT TREATING SALTS, CLEANERS, ETC.

N. Y. CITY: Lacquer Finishing, Delawanna, N. J.—DETROIT: June & Co.—CLEVELAND: Universal Paint & Varnish Co.—PHILA.: Albert Printz, Germantown—INDIANAPOLIS: R. E. Stovall & Associates—ST. LOUIS: G. S. Robins & Co.—LOS ANGELES: Barber-Webb Co.—OAKLAND: Geo. A. Kushman Co.

eliminating the 60 to 90-day waiting period before other types of paints may be applied.

Chlorinated rubber coatings, due to their high resistance and air-drying properties, are finding increasing employment as an industrial maintenance paint. This is especially true where excessively corrosive conditions exist such as in washrooms, acid rooms, laundries, on steel equipment exposed to corrosive conditions, and on alkali-handling equipment. Reports indicate that under such conditions, chlorinated rubber coatings give up to 300% longer service than other types of maintenance paints.

Additions of 20% to 25% of chlorinated rubber to other resins, such as the alkyd resins, will cut baking time in half, or will make possible air-drying of resins that otherwise require baking. This combination (with alkyd resin) is finding wide application for painting farm machinery, construction equipment, trucks, busses and similar products. The chlorinated rubber additive, besides imparting air-drying qualities and improved alkali resistance, does not affect flexibility, hardness or tint retention.

The principal limitation of the chlorinated rubber coatings is their susceptibility to high temperatures. Likewise, they offer little resistance to animal and vegetable fats, and to certain strong organic acids. Special chlorinated rubber solvents must be used for thinning, as these coatings have limited tolerance for mineral spirits or turpentine. When used outdoors, the coatings must be pigmented.

Summary and Conclusion

It is not the purpose of this article to offer an education in synthetic paint chemistry. That would require hundreds of text books and many years of advanced laboratory study. Rather, we have tried to give a sense of meaning to such terms as "urea", the "phenolics", and "vinyl resins", all used copiously by the paint trade but with little meaning to those who have had no contact with organic chemistry.

Also, it is hoped that the information herein will dispel the too prevalent conception that the so-called "plastic finishes" are a separate entity entering into direct competition with the natural organic finishes. In a large majority of cases, and any synthetic organic material employed in industrial finishing will be but a single improved component in a natural resin and oil organic finish formula that has been used for years. The exceptions, in general, are entirely new types of coating materials, not always displacing an organic, and achieving results superior to or impossible to achieve with natural organic materials. These finishes, in retrospect, are new tools in the industrial finisher's hands.

All factory workers should be trained in fire fighting and in other operations that will help to prevent loss of life and property in the event of fire.

K. E. Clarke New President of Ferbert-Schorndorfer

Kenneth E. Clarke has been named president and general manager of the Ferbert-Schorndorfer Division of American-Marietta Co., according to an announcement by Grover M. Hermann, president. Mr. Clarke succeeds to the position formerly held by David Andrew whose death recently occurred.

There will be no changes in sales and management policies. A planned program of expansion will be furthered under the direction of Mr. Clarke. The Ferbert-Schorndorfer Co. specializes in metal and automotive finishes.

Greater Eye-Appeal through DECORATIVE FINISHING

By Arthur P. Schulze

Streamlined product design plus attractive color styling equals more sales. As a variation from solid colors, here are a few of the decorative patterns that can be produced in one trip to the spray booth. Each finish is a one coat 2-operation job of beauty.

EYE-APPEAL, recognized as a potent sales-stimulant of consumer goods, is destined to play an even more significant role in product merchandising, as an era of intense competition emerges from the rapidly clearing mists of reconversion.

From the drawing boards of design engineers across the country comes a steadily swelling flood of new products to add greater utility and convenience in homes, factories, offices and stores—to create new markets, increase employment and raise our standard of living. Striking advancements in functional design, as incorporated in these commodities, must be matched with added attractiveness and greater beauty. *(Continued on next page)*

The element of visual appeal in new products is essential. That is why so many manufacturers are turning to the study of "color styling." They are interested in the technique of creating novel, distinctively different, eye-catching effects through the utilization of certain decorative finishes. It opens new vistas of great possibilities.

Extensive experimentation and development have made available, to individual finishers, a wide variety of arresting, artistic specialty finishes, many of which are original and exclusive. A manufacturer can, therefore, frequently choose exactly the particular type or style of finish best suited to provide his new product with maximum eye-appeal by giving it a distinctive color styling.

The manufacturer who is preparing for volume production, and who views quality, beauty and durability of finish as important sales considerations, will find it well worth-while to study the various decorative finishes now available, and the possibilities they will offer to his particular product. As a definite aid to this end, the following reportorial survey of some of the developments along this line is given herewith for quick review and for future reference.

Mir-A-Tex Offers Several Decorative Possibilities

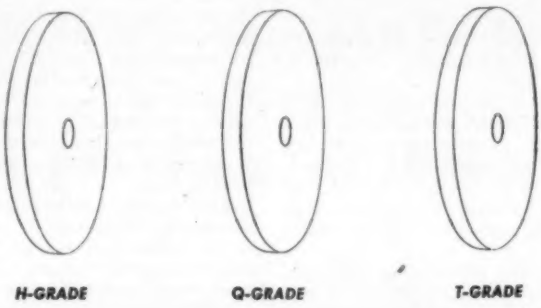
For metal, wood and composition surfaces, one finish that is rapidly becoming popular is a one-coat 2-operation finish consisting of a base coat (air-drying or baking) and a texture coat. It is known as "Mir-A-Tex", and reportedly derives its name from the near-miraculous manner by which: 1) irregularities and imperfections in surfaces to be finished are hidden with it; and 2) the interesting and attractive embossed effect produced.

One entry into the spray booth completes the finish. After the base coat is applied and time is allowed for the thinner to flash, the work is resprayed with the texture coat; then it is air-dried or baked. The material is said to be suitable for conveyor line production. The texture coat air-dries immediately and hardens the base coat. Coated parts can be handled in 15 minutes. Parts that do not have to be closely packed may be boxed or crated in from four to six hours. An idea of its unusual covering ability may be gained from the fact that fir plywood, purposely finished without sealer or surfacer, comes out with a smooth surface, as though it were hardwood. No primer is needed on metal.

The principal merits of Mir-A-Tex are that it: 1) attracts the eye by means of distinctive contrasting colors; 2) creates an impression of strength, ruggedness and durable quality; 3) insures high attention-value and identification on salesroom floors; 4) offers a variety of attractive color combination possibilities, being available in plain or metallic colors; 5) does not hold dust, cleans easily; is extremely hard and abrasion-resisting; is tough, adhesive, and chip-resisting.

Poly-Veil is Another Two-Color Finish

Another unusual decorative finish with innumerable color variations for metal, wood and composition surfaces is "Poly-Veil", also a one-coat, 2-operation finish that requires but one entry into the spray booth. The base coat may be synthetic or lacquer; air-drying or baking; gloss, dull or semi-dull. The secondary color is sprayed with a veiling head on the spray gun, forming stripes and broad areas which become imbedded into



There's more to grinding wheel grades than the A, B, C's

The A, B, C's which appear as identification on a grinding wheel help simplify proper grade selection. By clearly showing relative hardness, they make it easier to select the correct wheel for the job. That's one reason wheels by CARBORUNDUM are plainly marked. But, there's more to it than the old chestnut, "the softer the metal, the harder the wheel." It's not that easy.

You realize, for instance, that wheel speed itself affects grinding action. The same grade reacts differently at various speeds. The condition of the machine and the amount of vibration can make a difference. Desired finish... required tolerance must be considered. Coolant conditions vary. The actual type of operation—snagging, surfacing, internal grinding or whatever it it—influences practical selection.

Yes—there are many important factors to check before you can be sure of the right grade designation for the job.

Consult your CARBORUNDUM salesman or our distributor's representative. These men work throughout the year on a wide variety of grinding problems. They are familiar with grinding in production... in tool rooms... wherever it is used. They have practical knowledge and experience to help you pick exactly the wheel you need for the job.

Assisting these representatives in the field are our Abrasive Engineers. Specialized experts, they are equipped to analyze uncommon problems... recommend sound solutions. And, here in our modern laboratories are scientists and technicians who are working on the application of abrasive developments to changing grinding practices.

This *three way route* to better grinding is easy to use. No obligations are incurred. Merely talk "grinding" with a CARBORUNDUM representative. He'll be glad to assist you. The Carborundum Company, Niagara Falls, New York.

A good rule for good grinding...

Call in CARBORUNDUM

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ABRASIVE WHEELS
Silicon Carbide
Aluminum Oxide
Diamond

COATED AND BONDED ABRASIVES
Paper and Cloth Combination
Sheets, Rolls, Discs
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Specialties

ABRASIVE GRAINS AND COMPOUNDS
for;
Polishing
Lapping
Pressure Blasting
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"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company

the base coat, to produce an unusually attractive finish with a hard, tough, good-adhering, chip-resisting surface.

Its chief merits are that it: 1) effectively hides surface irregularities and imperfections, virtually eliminating rejects due to faulty finishing; 2) provides a practical finish for conveyor line production, with only one entry into the spray booth.

From the standpoint of visual attraction and sales promotion, this finish provides striking eye-appeal, with its original, exclusive color effects in many pleasing combinations. Because the veiling material imbeds itself into the base coat, the final finished surface is smooth; and, since the color stripes allow large areas of the base coat to show, it does not produce an overall color contrast. It is available in air-drying or baking materials. No primer is needed when a syntehtic base coat is used. A pressure tank and veiling head comprise the only production equipment required for its application.

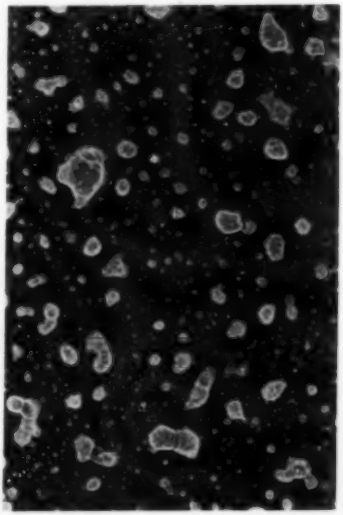
Multiform—A More Subdued Color Coating

Of older vintage but still regarded as an interesting decorative finish in its particular field, is a third material called "Multiform" which was one of the first practical one-coat 2-operation, duo-color finishes introduced to industry. Producing a hard, smooth, porcelain-like finish with a pattern coat of fine, colored streamers, it provides one answer to the problem of applying a second color to a tacky base coat without merging into it and disappearing.

First released to the stove and heater industry where it immediately enjoyed widespread acceptance, this finish soon proved to be an eye-catcher. Women liked its porcelain-like beauty and pleasing colors; they also observed that its smoothness repelled dust and dirt. Now that heater production is again under way, current indications are that this material, having withstood exacting tests, will continue as a popular stove and heater finish.

Like the other finishes previously discussed, "Multiform", according to its manufacturer, lends itself to fast production, masks imperfections, and reduces rejects to the vanishing point. It also is said to provide all of the practical requirements for conveyor-line production. It requires but a single entry into the spray booth, it may be air-dried or baked, and calls for no special equipment or spraying skill. The base coat can be gloss, dull or satin-dull.

"Duotex" is another smooth attractive chip-resistant finish, cre-



A typical pattern of Duotex finish.

CRITICAL CONSIDERATION *of our* POST-WAR SHIPMENTS

★

EVERY FORMULA IS REVIEWED IN LIGHT OF WAR EXPERIENCE

DOPES · LACQUERS · ENAMELS

RANDOLPH

FINISHING PRODUCTS CO.

Carlstadt New Jersey

ated for and now widely utilized in the stove industry. It is a single-coat, dual-operation, two-color finish. The second color is sprayed in a pattern of small globules which level out smoothly into the surface of the base coat to produce a granite-ware appearance. The dot size and the density of the pattern may be controlled and varied to suit the user's preference. This finish makes possible many original and exclusive color combinations. Its vitreous enamel effect creates the impression of superior quality and value.

Among its reported production features are: 1) hides surface imperfections; 2) fully meets conveyor line production requirements; 3) uniformity of pattern easily maintained without any special spraying skill; 4) application requires no special equipment; 5) can be air-baked or dried; 6) no primer need when used on metal.

Hammered Effect Finishes are Popular for Some Products

Several different makes of materials are available to produce a finish which presents the effect of metal that has been hammered to shape with a peen-face hammer. The craters in this finish are sharply defined and faintly edged in a darker shade, due to displacement action of the thinner, giving a two-color effect. This finish is generally smooth to the touch and it has depth of color and beauty, excellent adhesion, and is chip-resistant.

Highlights of its claimed production merits are chiefly three. First, it effectively hides surface imperfections. Second, one entry into the spray booth completes the job, and the finish may be either air-dried or baked. Third, pressure tank and spatter head comprise the only equipment needed.

To insure sharp, clearly defined, evenly-distributed craters on large, irregularly shaped objects, reasonable care is required in spraying. The full beauty of this finish is obtained by skillful spraying, the spray man being careful to see that the spatter drops of thinner do not overlap and blur the pattern, and also that they are not too sparsely distributed to bring out the overall hammered effect.

Wrinkle Finishes Can be Had In a Variety of Patterns

Among the widely known decorative coatings, wrinkle finishes are now available in a variety of new effects. In some of these coatings the conventional wrinkle patterns are strikingly rearranged, with the ridges maintained and the line formations changed, to create geometrical formations and fan-shaped patterns that impart new appearance and interest.

Several interesting departures have been made possible in connection with the use of wrinkle finishes. Imbedding wide stripes of dissimilar material, respraying with dull black or color, use of colored instead of clear pattern material to produce a fine colored overall design—these are but a few of the many color variations possible with modern wrinkle finishing advancement.

Many other decorative finishes now on the market contribute to improved product appearance through the medium of color styling, but space limitations will not permit an exhaustive discussion of them here. With the highly competitive consumer market placing a new premium on durable eye-catching finishes, it will profit any company wrestling with a finish selection problem to investigate the products now available. *(To p. 50)*

HAMMERTONE

GIVES YOUR PRODUCT "EYE APPEAL"

Hammertone has the beauty of beaten metal but it's smooth to the touch—easy to clean. This new M & W finish is easily applied, tough and durable, resistant to heat and moisture, and available in many colors. One coat hides scratches or small defects in metal or molded bakelite products. Give *your* product increased eye appeal with M & W Hammertone.

Our fine research facilities and 70 years of experience are at your service in solving any finishing problem. Contact any of our offices.

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PRODUCERS OF LACQUERS, ENAMELS, SYNTHETICS AND SPECIAL PRODUCTION FINISHES

To help those concerns find the the right answers to greater visual appeal in their new products and to further assist them in the selection of new finishes and color combinations, certain well-known suppliers of paints, varnishes, enamels and lacquers maintain special color-styling laboratories in which many interesting and practical spraying effects are produced. These finishing material manufacturers welcome the opportunity to be of constructive service, and they invite any company to use their color-styling facilities without obligation. They will color style any product submitted and return it to the sender so that he may see exactly how his new product will look.

T. C. Tupper Represents Monsanto in Cleveland

T. C. Tupper is now stationed in the Monsanto Chemical Company's Organic Sales Division Office at Cleveland. His territory is Northern Ohio.

Mr. Tupper, who joined Monsanto as a salesman in 1933, was discharged from the Army late last year after five years' service. He was a captain in Cavalry.

The territory which Mr. Tupper covers is under Monsanto's Organic Chemicals Division Products Branch office at Detroit which is managed by William Russell.

13,000,000 Automobiles Wanted

An estimated 13,114,820 passenger automobiles, including 9,329,720 for families with incomes of $3000 or less per year, are indicated as the possible market, as a result of a consumer survey recently conducted by Frank Mansfield, Director of Sales Research for Sylvania Electric Products Inc., to measure the present market for automobile radios.

According to Mr. Mansfield this may mean that there is a market for 1,246,200 cars to families with annual incomes of $5000 or more; 2,538,900 for those with $3000 to $5000; 6,443,000 for those with $1000 to $3000; and 2,886,720 for those with incomes of less than $1000.

Zapon Adds Three Men to its Sales Staff

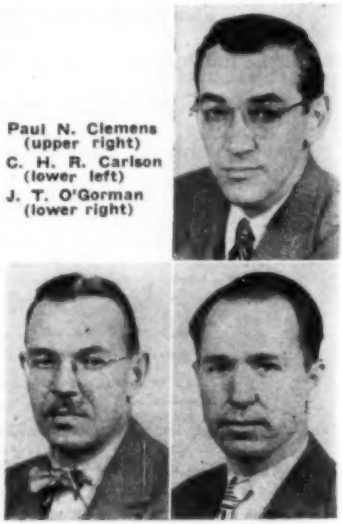
Paul N. Clemens, C. H. R. Carlson and J. T. O'Gorman have been added to the sales staff of the Zapon Division of Atlas Powder Co., in line with the company's present plans for increased production and enlarged laboratory facilities, it is announced by J. M. Howard, Zapon general sales manager.

The Zapon Division, which manufactures industrial protective coatings, has its main office in Stamford, Conn.

Mr. Clemens, who will work out of the Stamford office handling sales correspondence and sales development follow-up, formerly was assistant sales manager of a chemical company in Manitowoc, Wisc., and later office and laboratory manager for a firm in Cincinnati, Ohio.

Assuming charge of the metal precoating section of the Zapon Division, Mr. Carlson comes from the Military Planning Division of the Office of Quartermaster General, where he was head of the Paint and Varnish unit, plastics section of the research and development branch. He previously served with nationally known paint companies in Chicago and Los Angeles.

Mr. O'Gorman, formerly laboratory manager for another establishment, has been placed in charge of the packaging section of the Zapon sales department. Previously he was employed as a Zapon chemist.



Paul N. Clemens (upper right)
C. H. R. Carlson (lower left)
J. T. O'Gorman (lower right)

IT'S NEW...IT'S GLEAMING WHITE... IT'S EGYPTIAN

Egyptian Baking White Enamel Is Resistant To...

ABRASIVES • ACIDS • ALKALIS • SALT SPRAY • HUMIDITY • WATER IMMERSION • SOFTENING ACTION OF FATS AND OILS

It sprays on clean bare metal. No primer needed.
Bakes fast to a hard glossy finish.

Write for any desired information covering your special "white finish" needs.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

EGYPTIAN
SPECIALIZED PRODUCTION FINISHES

Highlights of characteristics noticed in furniture exhibited this winter, at the American Furniture Mart in Chicago, Ill. Styles, woods, finishes, colors, decorative effects, changes in materials, and certain trends are covered authoritatively.

BY ROSALIE FLANK
Home Furnishings Style Authority

Photographs of new furniture supplied through courtesy of The American Furniture Mart.

New Furniture Styles, Finishes and Colors

OVERWHELMING in its magnitude, the first peace time home furnishings market in Chicago broke every known record for all phases of operations, as some 22,000 dealers and their staffs, from all parts of the country, literally stormed the show.

Despite the problems which hung over the market—namely, strike threats; uncertainties of lumber supply due to veteran priorities; and OPA prices under Order 4800, announced just prior to the opening—the entire market reflected a note of extreme optimism, not only as to the promising future which lies ahead, but that the backlog of orders would be brought up to date within the next six months and the second half of 1946 would see the home furnishings industry back to some degree of normality.

Most manufacturers came into the show on a quota basis, with special consideration given to the Veterans of World War II embarking upon home furnishings as a new venture. Some merely participated in the show on a goodwill

basis, refusing to accept orders until their backlog permits them to take orders with reasonable assurance of delivery.

Dealers Were Eager to Buy; Makers Offered Fewer Lines

With dealers hungry for merchandise and grabbing up every crumb tossed their way, buying preference was impossible to determine. Manufacturers who courageously launched new finishes or styles were unable to accurately determine their acceptance among the trade, as buyers were eager to take anything that would fill the gapping holes in their inventory. However, a careful study of the market showed definite trends which may point the way toward events to come and influence styling at the summer market which is planned for July 8 to 20.

Nest table in three lacquer colors; a Chinese-American style designed by Ray See of Hollywood, California.

Overall impression of the market was that the lines have been materially shortened. Big manufacturers of bedroom and dining room furniture have reduced their lines from some 50 numbers in the pre-war era to five or six in the postwar showing. Fewer numbers with better styling, better construction, better finishing and better merchandising seemed to be the keynote upon which most manufacturers based their lines.

Merchandising was given greater consideration than at any market

Notice the deeply etched pattern on the bleached mahogany front in this design by Robert Dorr, Jr.

heretofore. Manufacturers of home furnishings have taken their cue from the home appliance manufacturers who have become an integral part of the market and are pointing the way to a new type of selling.

Labels accompanying some lines gave pertinent information about frame and drawer construction, also about the veneers and finish. These labels, planned for consumer distribution by the manufacturers, were well received by dealers and pointed toward a new trend in home furnishings merchandising. Names of well-known designers, who are now focusing their talents on the home furnishings field, also accompanied some of the new items. One manufacturer used the tag, "An original creation by—"; another, "this piece was designed by—".

Romance of the designs, with the reasons behind their creation, were explained by trained representatives, and new materials such as plastics carried with them cleaning instructions and guarantees of service. This practice, which has been effectively used in the home appliance field, is a new departure in home furnishings and should mean a great deal to the dealer, as added selling impetus, when merchandise is once more plentiful enough to be competitive.

Modern Design Popular in Medium Priced Lines

Modern design made the most consistent showing throughout the market. The modern influence, which led to further simplified versions of period pieces, indicated that manufacturers are turning out home furnishings which can roll off the production line with a minimum of labor and a maximum of style and selling appeal. Some manufacturers who heretofore carried both period and modern lines eliminated period pieces entirely, preferring to concentrate on a few "high styled modern suites and get volume production." On the other hand, manufacturers of the higher priced period suites, namely 18th Century, who formerly included a few of the modern suites in their lines, took out the Modern numbers "so as not to compete with the cheap Modern".

And so the two camps divided, the only link being the modernizing of the 18th Century lines—cleaning them up as it were and adding new young charm which should prove popular. Borax, so common ten years ago with its extreme waterfall fronts, large mirrors and flashy veneers, is practically off the market. A much subdued Modern in a light finish, has replaced it.

French furniture, except in the Provincial type, was also noticeable for its absence, but some of the manufacturers of the luxury lines hinted at adding a few French numbers in July for those who will have "plenty of money around" and who associate luxury with the more ornate types of French and English furnishings.

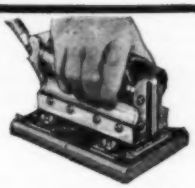
Some Colonial suites made their debut but since most of these are made of solid woods, namely maple, birch or cherry, they were not in evidence to the degree that veneered furniture appeared.

Some veneers heretofore unused in quantity appeared in the volume lines. Manufacturers used pecan, elm and sycamore successfully for attractive new numbers, along with oak, walnut and mahogany. Oak, pink filled and resembling bleached mahogany, made a consistent appearance.

Considerable stress was laid on finish in all new lines. The rich

Fast, Easy Sanding

for furniture manufacturers



OPPOSED STRAIGHT-LINE RECIPROCATION

Pads of this outstanding sander reciprocate in opposite directions. Vibration is reduced, operator's fatigue minimized and grain structure can be followed, producing finer finish. Elimination of end thrust makes it easy for operator to guide machine freely, produce smooth, level surfaces free from pressure marks.

You'll get speed plus power for faster sanding and lower costs on finishing operations with this light, easily handled Sundstrand pneumatic sander. It's portable, easily installed and maintained. It's powered by air, weighs only six lbs., develops ¾ H.P. and can be used in cramped and confining areas.

FREE HELPFUL SANDING INFORMATION

If you do sanding of wood, metal, plastic or composition, investigate the time-saving features of these outstanding sanders. Complete details and suggestions are included in these bulletins. Write for bulletins I.F.-4 today . . . they're free.

OVER 30 YEARS EXPERIENCE MANUFACTURING PNEUMATIC SANDERS

SUNDSTRAND MACHINE TOOL CO.

PNEUMATIC MACHINE DIVISION

2562B ELEVENTH STREET ROCKFORD, ILLINOIS, U. S. A.

beauty of the wood is emphasized by careful sanding and intelligent application of filler, stain and top finishes. Lighter tones—the more natural tones of the wood—gained preference. One manufacturer changed a well-designed bedroom suite from a medium dark walnut tone in which it was introduced, to a lighter shade to meet the new specifications of the more style conscious buyers who claim their customers prefer soft, lighter tones.

The soft brown of the natural pecan, the warmth of cherry, the warm glow of medium bleached walnut, and the pleasing tone of soft brown elm showed a new understanding of woods. Warm, medium light tones enjoyed greatest preference. These were highlighted by wood pulls, neat mouldings and glass and leather trim.

Leather Tops With Color and Gold Embossing

Leather came into the limelight in greater quantity than heretofore. It was used extensively for table tops, on end and cocktail tables, lamp and occasional tables, and as tops for chests in bedroom suites. Living room pieces employed the leather in book form. Colored leather binding resembling fine leather volumes filled up spaces allocated for books. One manufacturer went so far as to use the leather in actual book form, the table top being formed by the book lying on its side. Antiquated red, brown and grey leather were used, most of it being embossed with gold. The fine rubbed leather emphasized the finish of the wood.

Pine, used as the base of some highly-styled living room occasional furniture was embellished with subdued carvings and white filler. The mahogany that was shown had a patina, old world, softly rubbed finish. The hard, red brown, brightly shining piano finish of our prewar era was not in evidence.

Lacquer enameled pieces in black, red and dark green, trimmed with Chinese decoration, made a surprise appearance in a number of period lines. Some Colonial lines used color lacquered pieces, decorating them with Pennsylvania Dutch trims in authentic colors. The color finished pieces ran approximately 10% higher in cost than regular finished pieces, and seemed to be well received. *(To 58)*

A kneehole desk in all mahogany with fronts of swirl mahogany bordered with satinwood and marquetry inlay. It has a genuine leather top hand tooled with gold leaf; also antique brass hardware.

DURANITE

The Production Finish

CORROSION TESTED

SALT SPRAY

Spray with a carefully standardized salt concentration and proper temperature is generated in the *Salt Spray Cabinet*. Panels coated with various metal finishes are exposed to continuous action of the salt solution. Corrosion resistance of a coating is accurately judged by the number of hours it withstands these conditions. Finishes are compared by exposure under same conditions which can be repeated exactly. The test gives a real measure of corrosion resistance.

TEST NO. 1

Said the Zapon Representative:

"One of our customers has a large order for refrigerators and stoves to be used in a city right on the coast. Wants to know if DURANITE will stand up over the years to the beating it's bound to get from salt corrosion. He's really worried about it. What can I tell him?"

And the Laboratory Technician answered:

"It's a cinch. We've anticipated salt spray action on DURANITE, and it's made to withstand it. But that isn't enough. We've tested it scientifically and accurately so we *know* it can be depended on. The Salt Spray Test, properly conducted, is an accelerated laboratory measure of corrosion resistance. Such careful, scientific tests *insure* the superlative quality of DURANITE, the plastic base production finish.

One of a series of advertisements showing tests of DURANITE. Reprints on request.

ZAPON

ZAPON DIVISION
ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. Western Sales: No. Chicago, Ill.

SPECIALIZED PRODUCTION FINISHES

...Doing Tomorrow's Job Today!

Living Room Tables in Interesting New Designs

Coffee or cocktail tables took on a new form; they were lower and larger than heretofore. A new type of twin cocktail table, approximately 24-in. square and 18-in. tall made its debut. This twin could be used either individually, as a small unit along side a chair, or at either end of a sofa; or it could be used in a series of two or three units to create a large table 48 or 64-in. in length. The small units resembled a Chinese stool or the small tea table used in China.

Living room tables were much larger, the tea table replacing the smaller lamp table of our pre-war era. Some of the large drum tables were 44-in. in diameter.

An attempt to combine greater utility with high styling brought forth such units as a period lamp table and sewing stand. Designed to resemble a square flower pot and beautifully executed in mahogany, the unit in 18th Century design had style as a lamp table; and when the top was lifted it provided a well equipped sewing unit.

Game Tables and Accessories; Twin Chests for Bedroom

Several square game tables with cleverly concealed beverage racks which slide out of view when the flaps of the table are closed, showed that designers were incorporating Modern thought into period styling. A number of ingenious methods were used to provide a place for beverage glasses. All were effective and did not make the piece appear "gadget-like or tricky".

Twin pieces made an appearance in bedroom lines. A new twin chest designed to accompany the twin bed units is now selling in ever increasing numbers. The twin chests appeared in two forms. One is a "Siamese" in which a large 54-in. chest is divided into two 24-in. sections by a center partition, each side having its own double drawer pulls, although a single mirror and single top and foot board are used. The other type consists of actual twin chests which can be used separately. These were approximately 30-in. wide.

Some lines used mock twin chests —large cases divided by a moulding or a carved trim down the center and hardware placed at the center of each of the "small" drawers which, in reality, are one large drawer with a center partition.

Chinese Influence Appeared In Several Designs

The Chinese influence was the most consistent trim on Modern, some manufacturers going so far as to have especially designed pulls resembling Chinese coins. Others used mouldings in square Chinese fashion. Decorators for some years have combined Chinese accessories with Modern furnishings and this trend now seems to have penetrated through to the manufacturer of all price lines.

The only war-time influence noted was the simplified design and the use of new resins and glues. These latter were of the type developed for airplanes during the war, and now are adapted to home furnishings by manufacturers who became familiar with them through their participation in the war effort. Most manufacturers claimed that war-time production had little influence on new products.

More Plastics Were Used; Also Square Tube Aluminum

Plastic appeared in several forms, as tops on kitchen and dinette sets; as the structural part of occasional furniture such as cocktail tables, lamp stands, book-

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

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Factories

ROSELLE, N. J. EASTPORT, ME.

Has High Reflective Light Value

For Dials Controls Instruments

"WORLD'S LARGEST PRODUCER OF PEARL ESSENCE"

cases, etc. (both transparent and colored bar-type being used); and in fabrics on boudoir pieces. One manufacturer introduced a plastic material in luscious colors of cherry and lime. This new all-plastic material is claimed to resist abrasion, scuffing, flexing and wrinkling; perspiration grease and oil; is not affected by salt water or alcohol; will clean easily with soap and water, and will not become brittle.

Aluminum furniture, glass trimmed, made an appearance in some lines—used to fashion effective dinette sets and living room occasional chairs. Used in square tubular form, the aluminum had a dull silvery satin finish which was effectively highlighted by leatherette upholstery on the dinette chairs and with gleaming satin on occasional living room chairs.

Notes on Home Appliances

Most of the appliance lines showed 1941 models with a few new gadgets, such as time and temperature charts in decals on slide-out trays and in roller form, under glass, on the back panels of the stove. The control panels, especially on the electric ranges, resembled automobile dashboards with timers resembling speedometers and chrome controls pointing toward future ranges and refrigerators resplendent with chrome trim.

Lamps had little new to offer, with the exception of some Chinese figures used as lamp bases. These were planned to accompany either period or Modern furnishings.

Juvenile Furniture Highlights; A Fine Tea Wagon, too

Children's furniture showed ingenuity. One suite effectively used a circus theme with chests resembling circus wagons and youth beds trimmed with animal cage bars. Another line had a "Dude Ranch" suite with stirrup pull and leatherette trim decorated with "Brand Marks". The sleigh motif used on another line had a youth bed resembling a giant sled. A practical addition was a leatherette toy box fastended to the footboard of the bed; it doubled as a bench as well as being a toy box.

The first tea wagon to make its appearance in the past ten years was dramatically shown in plastic with two small wheels in the front and two decker trays. This practical accessory—a must in grandmother's day—made a surprise showing in its ultra modern form and was well received despite its high price mark. The unit will retail for approximately $100.

Unfinished Pine Furniture

Open stock groups in Ponderosa pine, unfinished, to be sold to the woman who prefers to do her own finishing was a feature. The open stock group comprised some 40 pieces for dining room, living room, bedroom and nursery, principally in the Modern and Early American design. Planned as a furniture store item rather than a housewares, the open stock grouping really made news. The unfinished group was approximately 20% less in cost than the same group finished.

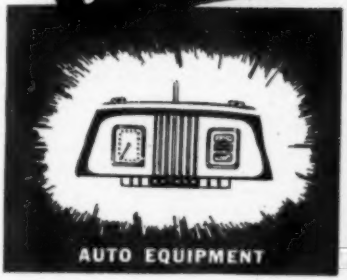
Although there were some general trends, it was noted that manufacturers have not indulged in much research to find consumers preferences, but have rather gone ahead with whatever seemed most suited to their manufacturing facilities. While most consumer magazines, which play a major role in influencing consumer buying preference, continue to emphasize ranch type houses which call for Colonial

(Continued on page 64)

SHERWIN-WILLIAMS
DIMENSO

REG. U. S. PAT. OFF.

DUO-TONES



NEW BLENDS

PRODUCT FINISH

3-dimension effect

2 colors...

1 spray operation!

EXCLUSIVE COLOR RIGHTS! Sherwin-Williams will work with you to develop your *exclusive* color combination ... registered ... to be yours alone. Call your Sherwin-Williams Industrial Representative today for a demonstration.

FREE!

DIMENSO BOOKLET

Descriptive booklet with actual finish samples yours for the asking ... requested on your business letterhead. Write The Sherwin-Williams Co., Cleveland 1, Ohio.

INDUSTRIAL FINISHES

and the more Provincial type of furnishing, manufacturers have gone heavily into Modern because of its ease of manufacture, and into luxury period furniture "to get that easy money floating around". Nor has the home furnishings manufacturer collaborated to any extent with the architect in planning the dimensions of the new furnishings, to ascertain whether or not they will fit into the new homes which will go up within the next few years.

Future Homes and Furniture

At a meeting of the American Designer's Institute, a well-known Chicago architect, Philip B. Maher, told of plans for new houses in which an average living room will be 12x14 ft. and an average bedroom 9x10 ft. Mr. Maher stressed built-in units and urged designers to consult with architects in various parts of the country to determine some kind of scale which they could follow so that new home furnishings will fit into rooms and that built-in furniture which were "natural additions" would be taken into consideration.

Price levels on new housing, Mr. Maher maintained, should be taken into consideration too, so that manufacturers would know the correct price bracket for the home furnishings which will be bought to furnish these homes. Mr. Maher, who was a judge in a recent home design contest sponsored in the middle west, announced that an $8,000 home won the award.

Monsanto Co. Appoints New Branch Manager in Cincinnati

Forrest M. Luckett, 38, has been appointed branch manager of the Organic Chemicals Division Office of Monsanto Chemical Co., in Cincinnati. His territory includes Southern Ohio, Northern Kentucky, and all of West Virginia except the northern tip and a small portion of the eastern part of the state.

Mr. Luckett has been associated with Monsanto since 1924 when he joined the service departments. He became a special products salesman in the company's Chicago office in 1937, where he worked, except for a brief period in St. Louis, until his appointment to his present position.

The Cincinnati office, located in Carew Tower, is under direction of J. R. Morehead of Monsanto's Phosphate Division.

J. W. Johnston Joins the P. D. George Company

The P. D. George Co., St. Louis 7, Mo., announces that John W. Johnston has joined its technical staff. A graduate of Case School of Applied Science, Mr. Johnston was formerly of the technical staff of a nationally known paint manufacturing firm in Cleveland, Ohio.

The P. D. George Co. believes that chemistry will play a more important role in the development of surface coatings than ever before. The expansion of the Industrial Finishes Division of The P. D. George Co. has been under way for some time and securing the services of Mr. Johnston is an important step in this development.

Becomes Director of Purchases for American-Marietta

Harold A. George has been made director of purchases for the American-Marietta Co., according to an announcement by Grover M. Hermann, president of the paint manufacturing concern.

Harold A. George is now Director of Purchases for American-Marietta

Mr. George, for the past six years, was general manager of purchases for the Chicago division of a large paint manufacturing firm. His headquarters are at American-Marietta's Kankakee, Ill., plant.

The $64 Question!

INFRA-RED or CONVECTION OVENS FOR DRYING AND BAKING?

The most practical answer is now provided through the use of the ROSS

AIRAY COMBINING

Infra-Red and Convection

This new ROSS development in oven design utilizes heat by infra-red radiation with proper air circulation —both under absolute control. This engineered combination provides many advantages not attainable with either an infra-red or convection oven alone. AIRAY effectively equalizes ambient oven temperatures, prevents stratification in the oven, eliminates the problem of fumes with positive exhaust, greatly shortens drying cycles at minimum cost for electrical energy. AIRAY is infra-red at its best!

* * * * *

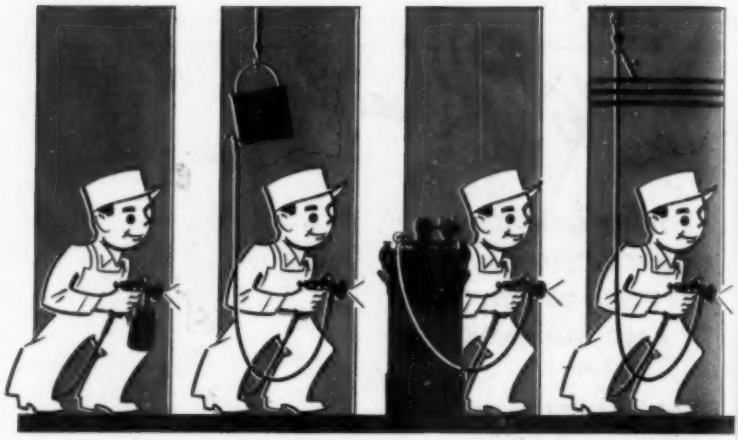
Drying and curing ovens designed for AIRAY are available for testing this modern method on your product at the completely equipped ROSS Laboratory. The facilities of this laboratory are at your service. Get in touch with our office nearest you.

ROSS SYSTEMS

J. O. ROSS ENGINEERING CORP.

DESIGNERS AND BUILDERS OF AIR PROCESSING SYSTEMS

ROSS CONTROL OF AIR FOR MODERN INDUSTRY SYSTEMS



From Paint Container to the Spray Gun

BY PETER P. WOOD

THE FIRST containers for holding paint to be sprayed were glass jars attached to the spray gun. Pint and quart size containers were used. Glass containers proved to be a hazard in more ways than one, so metal cups superceeded them. Today thousands of metal paint cups are in use, attached to suction-feed spray guns.

As the use of spray guns became more extensive in factories, larger containers were needed. These containers would have to hold enough paint to keep the spray gun going steadily for several hours. Then the idea was born of using a 5-gallon container of paint and hanging it high above the operator, so the paint could feed down by gravity through a hose to the spray gun.

The overhead gravity-feed container was considered pretty good for a while, but it had some objectionable features. Paint in an open container, hung from the ceiling, was a hazard from many angles, and a full day's paint supply could not readily be hoisted to the level required. The paint mixed for spraying would settle badly, and agitation in the elevated con-

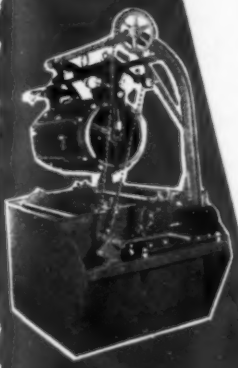
Leading up to a practical discussion of the merits of paint circulating systems—wherever they can be used profitably in production.

COMPOUNDS
FOR YOUR
METAL CLEANING EQUIPMENT

Be sure and consult our engineer concerning the new, faster acting, harder hitting MAC DERMID INCORPORATED cleaners, strippers, additives, and burnishing compounds that have been individually developed for post-war production . . . now available in special variations for use in all types of equipment. Write for free Data Sheets.

Headquarters in New England for Cleaning, Finishing, Plating Equipment

Be sure and consult our representative concerning your every metal finishing need. Ask him to describe to you the many new developments in modern metal cleaning and finishing equipment.



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WRITE ONE OF THESE SERVICE ORGANIZATIONS FOR FREE DEMONSTRATION

NEW YORK	DETROIT	CHICAGO	CLEVELAND	ST. LOUIS	TORONTO—CAN.
Udylite Corp (L. I. City)	Udylite Corp. Wagner Bros.	Udylite Corp. Geo. A. Stutz Mfg. Co.	Udylite Corp. McGean Chem. Co.	LaSalle, Incorporated	Clark Industrial Supplies Co.

tainers presented a difficult problem, although it was worked out reasonably well after a time. Pressure varied, depending upon the height of the container and the quantity of material in it.

To meet the demands for a better and safer method of handling paint inside factories, a clamp-top tank was designed and built. It could be placed on the floor near the operator and, by the simple method of regulating compressed air in a blanket at the top, and with a fluid tube to draw off material from the bottom, all of the bad features of the gravity system seemed to be eliminated. Material flowed through a hose from the container to the spray gun—and the flow of material was under controlled pressure.

The modern clamp-top pressure tank has stood up as about the most efficient paint container for the average industrial paint shop, and today tanks with capacities up to 120 gallons are available for those who can use them.

The pressure tank, like the gravity tank, should be located close to the spray station. I say "close", because as soon as paint (thinned for spraying) leaves the tank and enters the hose, then that paint is out of the agitated area. In most cases the material moves very slowly through the hose to the spray gun. I say "slowly" because using as much as five gallons an hour, the speed of travel through the hose, from the pressure tank to the gun, would be very slow.

During the period of travel from pressure tank to spray gun, the heavy pigment will begin to settle out—or it has a tendency to settle because of lack of agitation after leaving the tank. The longer the hose, the more likely you are to have trouble. In the event that one or more lengths of pipe are connected to the pressure tank, so that connections on the pipe line will supply several hose and spray guns, you can see how the paint may vary in viscosity, color and pigment content at the different spray stations. As the length of the pipe increases, conditions grow worse. This kind of pipe line system is called a "dead-end system". It has too many pitfalls to recommend its use, and those who use it fully understand why I say this.

Circulating Controlled Paint Through Pipe Lines

This brings us up to the "circulating system", which is generally recognized as the most satisfactory way to distribute paint and establish definite control over production painting operations at each spray station. A circulating system is little different from a tank and hose, other than the fact that a pump is installed to force the paint through a pipe line, returning all unused paint back to the container. In this system the paint is always in agitation and, because it returns back to the original container, it is always the same viscosity and color.

There is one place where the paint within a circulating system can get slightly out of control, and that is from the paint regulator through the hose to the spray gun. The hose should always be as short as possible to avoid this. However, there is a circulating system which prevents this possibility. It came into being with synthetic enamel. This system is called the "high-pressure feed, low pressure return".

High-Pressure Feed, Low-Pressure Return

This system, depending upon its length, uses a ¾-in. feed pipe to a pressure regulator at the farthest point. From the regulator back

COMPLETE *Finishing* SYSTEMS

AUTOMOBILES
TRACTORS
RAILROAD CARS
REFRIGERATORS
Ironers, Washing Machines, Freezers, Stoves, Metal Furniture, Plumbing Ware, Radios, Airplanes and many other Products

At right is a Mahon Finishing System designed to handle a four-unit finishing job on engine parts. The Spray Room, housing four Hydro-Filter Spray Booths, is completely enclosed and is supplied with clean, filtered air maintained at a slight pressure.

. . . Planned and engineered to do YOUR FINISHING JOB with utmost Efficiency

No matter what your finishing requirements may be . . . no matter what shape or size your product may be, the Mahon organization is prepared to produce for you the most efficient installation obtainable. This statement is supported by over twenty-five years of pioneering in this field, involving research, development and coordination of machines and methods, and is backed up by hundreds of installations all over the world—installations that are now serving every industry where finishing constitutes a major production operation. The resultant wealth of technical knowledge and practical know-how that go into the planning and engineering of each Mahon installation is not available to you elsewhere . . . consultation with Mahon engineers will not place you under obligation.

Address Correspondence to INDUSTRIAL EQUIPMENT DIVISION

THE R. C. MAHON COMPANY

Home Office and Plant, Detroit 11, Mich. • Western Sales Division, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems including: Metal Cleaning Machines, Rust-Proofing Machines, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Units, and Drying and Baking Ovens. Also Paint Sludge Reclaiming Units, patented Hydro-Foam Dust Collecting Systems, and many other Units of Special Production Equipment.

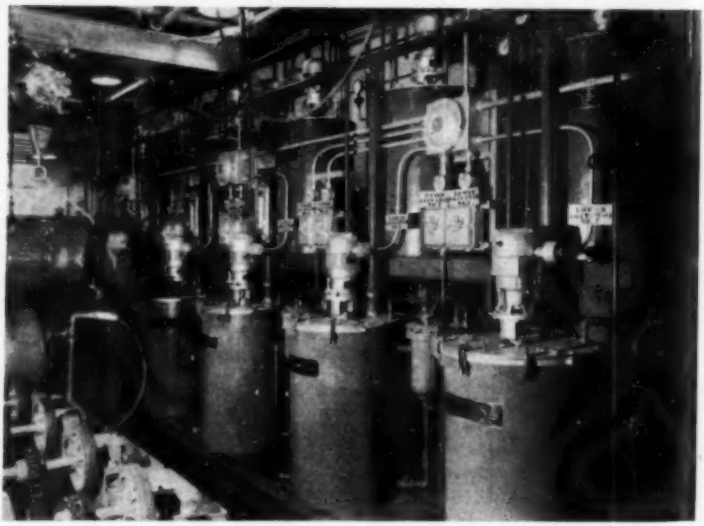
MAHON

to the feed tank or reservoir, a 1-in. pipe returns parellel to the feed pipe.

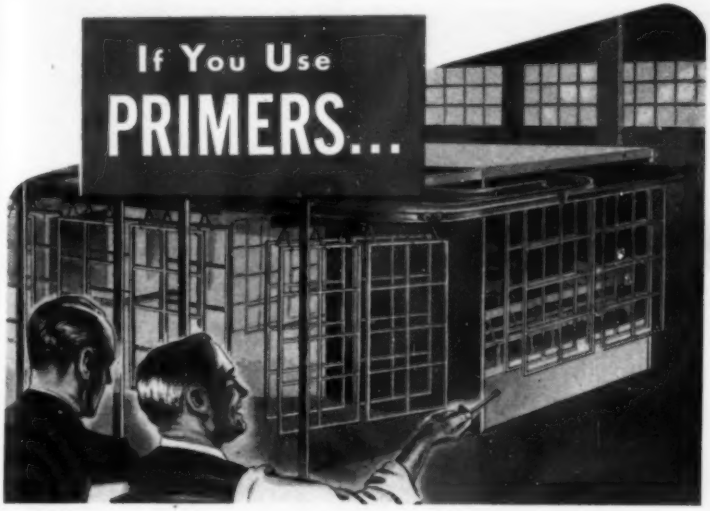
At each spray station a regulator is installed in the high-pressure feed line, and a hose leads to the spray gun. The spray gun has a special fixture to allow the connection of two material hose. A second hose extends from the spray gun back to the low-pressure return line. With this system there is not one ounce of material that is not in constant motion, including what is in the hose and spray gun. This kind of a circulating system gives you complete control of color and viscosity, even when using the most fickle colors or materials.

The question comes up as to when and where it is desirable to install a circulating system. There are many factors to consider, but to my mind the most important reason for putting in a paint circulating system is to be sure of getting uniformity of color on all parts to be painted—especially when various parts to be assembled are manufactured and painted at distant or remote locations in the same plant. With a properly designed paint-circulating system operating in good order, the paint for all different parts painted the same color comes from the same container and it is in constant agitation, therefore it is of uniform color and viscosity at every spray station.

In a factory where no suitable space seems to be available for storing and mixing paints or other materials that enter the circulating system, the concern can build a small storage and paint-mixing de-



View in a paint mixing room which is the heart of any paint circulating system, wherein prepared paint is pumped to all spray operators through pipe lines.



ask about these two, new BERRY BROTHERS PRIMERS

Again, intensive wartime research and volume production methods have resulted in important new advances in primer formulation, in which performance and economy are combined as never before!

Get the facts on these two new Berry Brothers' Primers — No. 30 SYNTHETIC GRAY and No. 25 SYNTHETIC RED CHROMATE—today!

- **Zinc chromate base — highly rust resistant—withstands 30-day salt spray test.**
- **Very economical — reduce equal parts with Toluol substitute.**
- **High solids—excellent filling.**
- **Perfect base for lacquer or synthetic finish coats — ideal for automobile bodies, parts, steel sash, laundry and farm equipment.**
- **Apply dip or spray — excellent tank stability.**
- **Air-dry to recoat in 5 minutes—bake in gas, electric or infrared oven.**
- **Immediate delivery—write for further details, prices and sample.**

BERRY BROTHERS
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QUALITY FINISHES SINCE 1858

Notice the three lines of hose to this spray gun—one for air (entering the handle) and two for material (connected back of the gun nozzle). The two material hose are connected to a high-pressure feed low-pressure return paint-circulating system wherein the paint is moving all the time.

partment entirely separate from the main building. This will reduce the fire hazard to the main buildings.

Operation and Maintenance of Paint Circulating System

Wherever a paint-circulating system is used, one man should be made responsible for the storage of drums of paint materials and thinners, their rotation of use; the mixture, viscosity and temperature of all materials; and the supply of proper materials to the various spray stations.

However, the control does not end here. At each spray station a control device is installed to regulate the paint pressure used by that spray man. The control device is set and made secure by a lock. When the control of paint materials goes this far, I say that the atomizing air pressure should be included too—by means of a controlled locked device from a header of air.

From here on, the finishing foreman can insist on that final bit of control, which includes a controlled spray stroke for every piece being sprayed, and the spray guns at different spray stations (but on the same work) being equipped with identical air caps and fluid tips.

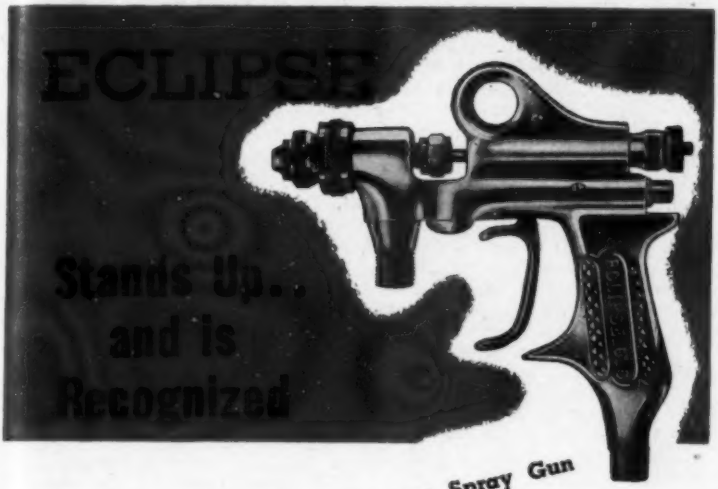
A paint circulating system requires maintenance. Someone must attend to it at all times. It is not cheap, but for those who can use it, the circulating system will more than carry itself on the black side of the ledger.

How We Solved Our Corrosion Problem

SINCE lead-coated steel is not available at present, the corrosion problem is something that must be taken into consideration if the finish on metal products is expected to hold up for any reasonable length of time.

First, all traces of corrosion (if any) must be completely removed before the prime coat is put on, or the corrosion will continue to increase under the paint and eventually it will lift the paint. If the joints are welded instead of being soldered together, this will keep down corrosion, because no soldering acid is used.

If soldering is done, a soldering flux with a low acid content can be used and this will not cause as much corrosion as a regular soldering acid. However, a neutralizing material can be used which will



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Strong one-piece Low Pressure Spray Gun Construction.

Protected trigger action to prevent wear and damage from the outside.

Exterior packing gland protected by design. Located to facilitate repacking and adjustment, it is guarded from knocks and jolts.

The Eclipse records are full of commendations from enthusiastic users, because Eclipse Spray Guns are designed to STAND UP on the toughest production line. And Eclipse has recognized operating advantages also.

So, ask for an Eclipse Spray Engineer to discuss your spray painting job. No obligation, of course.

ECLIPSE AIR BRUSH COMPANY
392 Park Avenue • Newark 7, N. J.

ECLIPSE

help to keep down corrosion. After the soldering job is done, the places where soldering flux or acid was applied should be wiped with a neutralizer. This must be done immediately after the soldering and before the acid or soldering flux has had time to dry.

If, after the precautions just outlined have been taken, there is still some corrosion on the product, it can be removed with a rust remover, applied with a rag, brush or hand mop. The remover I use is "Vincul." It will take away all of the surface rust. However, if the corrosion has eaten into the steel, some 1/0 steelwool, dipped into the rust remover solution, will take out all of the surface rust and if rubbed on the bad spots, it will remove and kill all corrosion in the pores of the metal.

This same remover acts as a preventive for several hours after being used—that is, if a thin film of material is left on the metal and allowed to dry on the surface. After the surface has been cleaned of all corrosion, then the entire part or product should be treated with clean remover and wiped clean, but not wiped completely dry. This will protect the metal against corrosion until the product is painted—and from then on there should be no trouble with corrosion.

No further cleaning is needed—except possibly the usual "dusting" to blow off any dust, powder, lint or specks, with a compressed air gun just before prime coating.

We do no sanding (not even light sanding or steelwooling) after treatment of surfaces with the rust remover. If sanding is necessary to clean or smooth the steel surface, we do it before using the rust remover—so that once the rust remover is used over the steel surfaces, nothing will be done later to scratch, cut or remove that remaining protective but invisible film.

I find that by having the product free of corrosion and chemically clean before the prime coat is applied, I have no further trouble.

To my way of thinking, surface cleaning is the most important of all operations in the finishing room. I have found by experience that the metal finisher will seldom have trouble if the cleaning operations are done thoroughly so the surface of the metal is as clean as it is humanly possible to make it.

The following test which I made with the rust remover* mentioned in this article, may be of interest to readers. I took a panel of corroded steel, 12x18-in., and removed the corrosion from half of the piece of metal. I set it away in the finishing department for two years. At the end of that time, the part that had been cleaned was still free from corrosion.—F. HAGAN.

*Name of material on request.

Rust-Oleum Appoints Factory Representatives

The Rust-Oleum Corp., Evanston, Ill., manufacturers of Rust-Oleum, a rust preventive used in the treatment of structural steel, has appointed five new factory representatives.

The representatives and the territories they will cover are L. R. Nelson, Chicago industrial area, with headquarters at the company's home office in Evanston; Erwin Randt, Minnesota, Wisconsin, Iowa, North and South Dakota, Nebraska and northwestern Illinois, with headquarters in St. Paul; Leonard Beels, Kansas and Oklahoma with headquarters in Wichita; E. N. Dancey, Ohio, Indiana, Kentucky, West Virginia and the Pittsburgh industrial area, with headquarters in Columbus, O.; Warren A. Risk, eastern half of Michigan and the Detroit and Toledo industrial areas, with headquarters in Detroit.

Masking out bright machined surfaces and name plates on a machine tool before painting it. Photograph, Minnesota Mining & Mfg. Co.

Masking Tape Useful in Product Painting

BY S. J. TREZAC

WITH THE production of civilian goods under way again, intensified competition makes manufacturing costs a factor of vital importance. To manufacture quality products rapidly and economically—this is one of industry's first and foremost economic "orders of the day."

Any techniques, process or methods that help to solve difficult production problems are very much in demand. One kind of technique that goes along with protective and decorative product painting is the skillful utilization of modern pressure-sensitive* tapes. Pressure-sensitive tapes have been put to many interesting uses by industrial finishers. In fact, their uses are so many and diversified that it would take an article many times

*Pressure-sensitive tapes adhere to most any clean dry surface, such as wood, metal, glass, tile, rubber and dry paint films. They require no moistening or any other type of preparation. They adhere firmly and may be removed without damage to any painted or finished surface.

Masking certain areas of parts to be spray painted. Photograph courtesy of Minnesota Mining & Mfg. Co.

the length of this one to depict the various kinds of these tapes that are available, and to explain all of the uses for masking tape in the field of product painting, as well as in other departments of modern factories.

Following are but a few of the interesting ways in which production superintendents, finishing foremen and others responsible for turning out quality finishing work on a quantity basis, at low cost, are employing this versatile "tool" to attain their objectives:

Masking areas that are not to be painted (by spraying, dipping, flow coating, roller coating) but which adjoin surfaces to be painted. Also masking for 2-color work wherein it is necessary to shield one color while another color is being applied over an area next to it. Masking allows the making of a sharply defined line of separation between two colors or two different patterns of decoration. It is used to simplify and speed up the painting of one or more color bands or other geometric or irregular figures on an area, as on truck vans, aircraft and various other kinds of products.

Masking tape is often used to supplement or fasten in position other types of temporary shields which are positioned on surfaces being painted by spraying, dipping or brushing. It is sometimes used to hold stencils in position; sometimes as a stop-off for graining, marbleizing or other kinds of surface decoration. Also, masking tape is frequently used in connection with sandblasting, to protect certain areas from the cutting action of the sharp abrasive.

It is now possible to secure masking tape that will withstand a trip through ovens in which paint and enamel coatings are quickly dried at high temperature.

Masking tape is available in several different widths. The varied possibilities of masking tape in

Automotive painters and refinishers find masking tape a necessity on every job. Photograph, courtesy of Minnesota Mining & Mfg. Co.

New high-solids lacquer . . .

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With high-solids lacquers providing coatings of twice the usual thickness, finishing departments can turn out far more work with no increase in space, manpower, or equipment. Each coat now does the work of two! Higher percentages of lower-viscosity nitrocellulose have made this possible. Increased thickness and protection are noticeable only after drying. Investigate high-solids lacquers now . . . for high-speed finishing of metal, wood, fabric, rubber, leather, paper, plastics . . . and see what time and money you can save.

Ask your lacquer supplier for complete details and application data on these new time-and-money-saving lacquers, as they become available. Hercules does not make high-solids lacquers, but concentrates on the production of the highest quality nitrocellulose from which they are made.

CL-54A

HERCULES

Cellulose Products Department

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connection with product painting and finishing certainly merit thorough investigation and careful study by all forward-looking executives. Production engineers and clever workmen are continually discovering or suggesting new ways to employ masking tape to make various types of work easier, simpler and less expensive.

How Masking Tape is Used Painting Truck Trailers

As a specific example of one of the common uses of masking tape, one large manufacturer of truck trailers (which, incidentally, are almost as large as a railroad boxcar) uses the following procedure:

After the proper cleaning of all metal surfaces, those parts and areas not to be painted are carefully masked with paper which is held in place by masking tape. Then the entire trailer is sprayed with a coat of primer. When this is dry, the lower panel is spray coated with blue synthetic enamel, the spray operator being careful to avoid, as much as possible, the 10-in. center panel formed by two half round moldings. When this is dry, a sheet of 60-lb. craft paper as wide as the lower panel is used to mask the lower section. The paper is held in place at the upper edge with 1-in. masking tape carefully smoothed out and pressed down tight to the painted surface to prevent any underspray. To hold the lower edge of the masking paper in place, so it will not fan out from the truck body, it is taped down at intervals of about 3-ft. with short pieces of tape applied vertically.

Grey enamel is then sprayed on the 10-in. middle panel. When this is dry, the middle panel is masked with craft paper which is held in place by tape smoothed out along

This picture shows the application of varying widths of masking tape to the casings of typewriters. These typewriters are finished in crinkle finish and are highlighted with stripes of a high luster enamel. The tape is applied just before the crinkle finish is sprayed on the work. Photograph, courtesy of Industrial Tape Corp.

the upper horizontal metal molding. This paper shield is also held flat against the truck body with short pieces of tape applied vertically along its bottom edge, the pieces of tape extending part way over the paper mask that protects the bottom panel. White enamel is then sprayed on the top panel section.

When spraying a masked surface, *the spray gun should be held at a slight angle to direct the spray away from the masking tape,* instead of spraying at right angles to the tape. This precaution is

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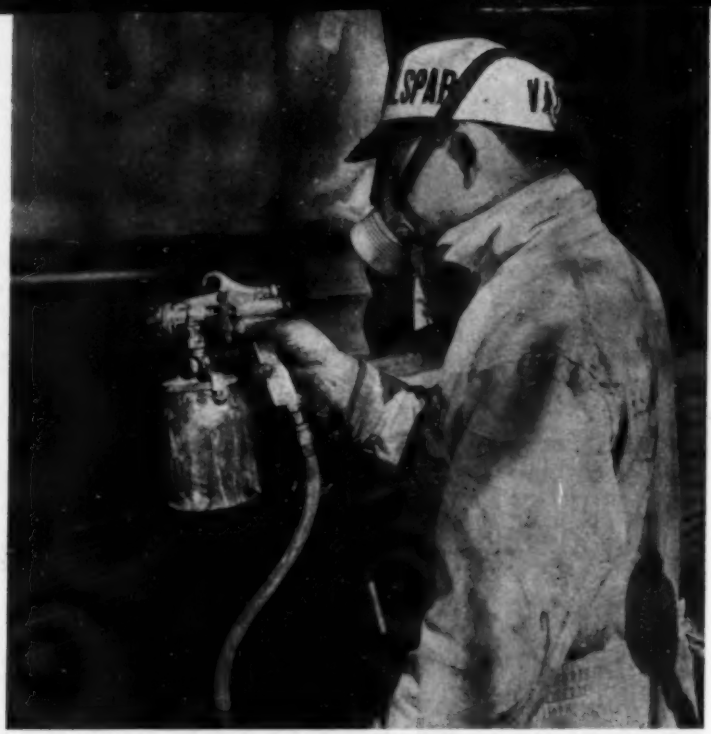

Here is some of the final decorative finishing on a new stainless steel streamlined railway car. In work of this nature the spray painting is generally done in the open, or in drafty sheds, and it is necessary to use a great deal of tape and masking paper in order to protect the stainless steel from flying paint particles. On this particular job, the coves are masked with tape and the ridges are sprayed. The final effect is a striped color on the high points of the stainless steel. Photograph, courtesy of Industrial Tape Corp.

taken to avoid any tendency of the spray to be driven under the important edge of the tape.

The masking paper and tape are all removed, and the surfaces of the two horizontal half round moldings are carefully cleaned so they can be painted bright red. The moldings are ⅞-in. wide. Each molding is expertly masked on each side with ¾-in. masking tape. Then the red enamel is put on with a brush.

It is important to know just when and how to remove masking tape to avoid "lifting" or "tearing" the paint film. This technique is best learned by experience. Before the masking tape can be removed safely, the paint must be allowed time to "set up" sufficiently so it can be touched or lightly rubbed with the fingers. For instance, one expert automobile painter says that, for lacquer, he allows the paint job to dry 40 to 45 minutes before starting to strip off the tape. On enamel he allows an overnight dry.

The masking tape must not be jerked off violently. The workman starts at one end and pulls it away

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gently and steadily, pulling it straight away from the painted surface; in other words, at right angles or squarely, to leave a clean sharp edge.

It has been found that 60-lb. craft paper is best suited to masking large areas, especially where a heavy coat of synthetic enamel is to be applied, as this paper prevents any color from bleeding through to the surface being protected. Newspaper masks will answer the same purpose when lacquer is being used. When they will serve the purpose, there are certain advantages in using newspapers for masking. They are of uniform size and small enough for one man to handle easily, whereas any rolled paper calls for two men to do the masking—one to guide the paper and apply the tape, the other to feed it out and handle the roll. Under certain conditions it may be possible to use newspapers for masks in connection with spraying synthetic enamel provided the coat being applied is not too heavy and wet. Some experimenting will enable one to determine what type of paper mask is best to use.

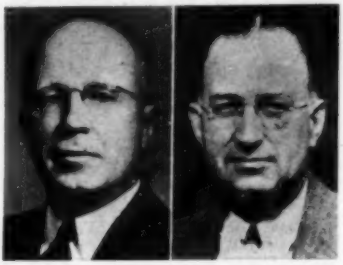
Width of masking tape varies with the type and size of work being done, and the results to be accomplished. Masking tape is available in almost any desired width. For economic reasons it is undesirable to use any tape that is wider than necessary.

Storage of tape is important. If it is kept in an unheated room, it is likely to tear while being peeled from the roll. On the other hand, if it is kept in an extremely hot place, the gum will soften and it will stick too tight, not only in unrolling but on the surfaces being masked. When this occurs, some of the paint may come off with the tape. Likewise and for the same reason, masking tape should never be applied to a hot surface. A dry warm room (72° to 74° F.) makes an ideal storage place for masking tape.

Ross Engineering Corp. Now in Its 25th Year

At a recent dinner celebration of its 25th Anniversary, Mr. J. O. Ross, founder of J. O. Ross Engineering Corp., outlined a few highlights of the firm's early history.

He explained how the company, which is today one of the largest concerns building air handling machinery and equipment for all types of industrial processing, was formed at the low point of the depression year of 1921. The entire organization at that time consisted of three men, besides Mr. Ross himself, and two girls. Eighty nine orders for equipment were entered on the books during the first year, some of these for amounts as little as $9.00.



J. O. Ross S. W. Fletcher

The first Ross-Briner Economizer was installed in 1922 and since that time this now famous waste-heat recovery system has become very popular. The company's entry into general industrial drying occurred about that time. Then followed high temperature drying and baking systems installed for many of the leading manufacturers of automobiles, aircraft, household appliances, metal furniture, etc.

Later the company entered the field of air conditioning. To organize an air conditioning department, the company hired a young man who had some experience in that field. This man was S. W. Fletcher who joined the organization in 1923, and who now is President of J. O. Ross Engineering Corp.

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American Furniture Mart photograph by Grignon.

BLEACHED FINISHES

BY EDWIN HOGSTROM

BLEACHED finishes for furniture, fixtures and interior woodwork came into prominence several years ago, and were referred to by some individuals and concerns as Swedish or Swedish Blond. Later they were further developed and toned this way and that way to become the popular finishes of today, known by such exotic names as Lime, Harvest, Wheat, Champagne and Straw.

The original Swedish finishes were almost white, and it was difficult if not impossible to match the blond tones on pieces of furniture finished at different times. One piece finished today would not match a piece finished two or three weeks earlier or later. The reason? Woods from a different "run", or treated with a stronger or weaker bleaching solution; insufficient drying time; and other things . . .

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ENGINEERS OF PRODUCT FINISHES

Wheat and Harvest Tones More Easily Controlled

Eventually bleached finishes were developed which are more easy to control and match—for example, the Wheat and Harvest tones.

When a finisher is using bleaching solutions, he must exercise extreme care, as these solutions are dangerous if handled carelessly. Rubber gloves should be worn at all times when mixing and applying bleaching materials.

Some woods will not bleach—will not give up the natural color. As a general rule the hardwoods will bleach but the soft woods will not. Oak, birch, mahogany, ash, maple, beech and walnut can be bleached; but gum, tupelo, pine and poplar can not be bleached.

A piece of funiture made of mixed hardwoods and softwoods can seldom be successfully bleached to a uniform light tone. For this reason, furniture that is to get a bleached finish is generally made of hardwood which is carefully selected for reasonable uniformity in species, density, grade and color.

Bleaching Solutions and How to Use Them

I believe I am safe in stating that most of the commercial bleaching materials which are sold and used in great volume for wood finishing, come in units for two solutions. These are conveniently designated as Solutions No. 1 and No. 2. Most of the manufacturers of bleaching compounds will recommend the separate use of the first, No. 1 solution and then No. 2 solution. Both solutions are used. With No. 1 solution, one application is all that is necessary or desirable; but as many applications of No. 2 as are needed can be used.

The solutions No. 1 and No. 2 can be mixed together to form a one-application preparation in cases where the finish does not call for an extremely light tone. Mix two parts of No. 2 solution to one part No. 1 solution. Mix no more than what will be used during the one day, as the strength and efficiency of the mixture deteriorates in a short time.

If at any time, either of the bleaching solutions, or the mixture of No. 1 and No. 2, should get onto your own workman's skin, wash the place immediately with plenty of water.

Mix the solutions in glass or earthenware containers—never in metal containers, as metal has a neutralizing effect on the mixture. Do not pour back any unused bleach into the original container, as this would spoil the whole lot if any foreign matter happened to be in the left-over mixture.

When applying a bleaching compound, as recommended by the supplier, pour a small quantity of No. 1 solution into a container so it is ready for use. Use rubber gloves and saturate a wad of clean cloth (large enough to be handled comfortably) with the solution. Squeeze out the surplus and wipe the piece of furniture being bleached with the wet cloth. Go over the entire piece with a wet coat, applied as nearly uniform as possible. If the wood surface has some areas that are darker, a little extra bleaching compound can be put on over these darker portions to help equalize the final result.

The No. 2 solution can be applied immediately over the No. 1 solution, and in the same manner, although it is generally better to let the No. 1 solution "work" for a while. If, after drying, the wood surfaces are not as light in tone as desired, a second treatment with No. 2 solution can be added. Never repeat the No. 1 solution, as this

is not necessary. As many applications of No. 2 solution as seem to be needed can be used, but rarely will more than two be necessary.

They Can Be Sprayed but Observe These Precautions

The bleaching mixtures can be sprayed over the wood instead of being wiped on with a wet cloth or sponge, and spraying will prove to be just as efficient. In fact spraying is more convenient where a large number of pieces are to be bleached. However, some precautions must be taken when spraying these mixtures. The spray gun will have to be fitted with a special fluid tip. For cup guns, a special suction tube will have to be used, and the material container will have to be a glass jar instead of the usual aluminum cup. Small pressure tanks can be used if the inside of the tank and the material pipe are lined with glass or treated with a coating that is resistant to acids and alkali solutions. Precautions must be taken to prevent any bare metal from making contact with the bleaching solution.

Drying and Rinsing After Application of Bleach

After the last application of bleaching solution the drying period should be at least 12 hours. To guard against any possible reaction of the bleaching material, the treated surfaces of the furniture should then be rinsed with water to which has been added a small quantity of acetic acid or ordinary vinegar. This will neutralize the chemical action of the bleach and stop further action. Unless the wood surfaces are rinsed, the bleaching compound may continue working and, when a coat of finish is applied, the active gases from the bleach may force the wet lacquer into hundreds of tiny bubbles. Succeeding lacquer coats will not hold down these bubbles. Sometimes the bubbles will not appear until the last clear coat of lacquer has been applied; then they will show up and spoil all of the work.

Of course, if time is no object—in other words, if there is no hurry—rinsing can be omitted provided the piece is allowed to stand for as long as 72 hours after the last application of bleaching compound. This length of time will allow the chemicals in the bleach to complete their work and cease further activity, so that no clear water wash-off or rinse will be needed.

After the bleached surface has become dry, and before starting to put on any finishing material, sand the wood surfaces lightly with fine sandpaper to remove the nap or fuzz that has been raised by the application of the bleaching solution and the water rinse. After selecting the color desired, proceed as on any finishing schedule.

Typical Finishing Schedule For a Mahogany Desk

Here is a schedule for finishing a mahogany desk in a bleached finish.

1) Wipe or spray two coats of bleaching mixture (one part of No. 1, two parts of No. 2), over the entire piece.

2) After a 12-hour drying period, rinse with water and vinegar.

3) Allow the treated surface to dry for 12 hours. Less time can be allowed if facilities are available for force drying.

4) Sand the surfaces lightly with fine sandpaper.

5) Apply a wash coat of clear sealer. (This will prevent the succeeding coat of filler from coloring the wood and will keep the wood grain prominent and clear.)

6) Apply filler. (Color to be only slightly darker in tone than

the bleached wood.) Pad in, wipe off excess filler, and allow the surface to dry thoroughly.

7) Spray on a sealer coat.
8) Sand lightly with fine paper.
9) Spray first finish coat.
10) Spray second finish coat.
11) Rub in usual way.

If only the top is to be rubbed, spray the body of the desk with a rubbed-effect lacquer.

Schedules for Harvest Finish

Referring to the popular Harvest finish, this can be produced in different ways. For example, the following is one schedule:

1) Bleach and rinse.
2) Sand the surface smooth.
3) Fill with harvest filler.
4) Spray sealer coat.
5) Sand lightly.
6) Spray first finish coat.
7) Spray second finish coat.
8) Rub in usual way.

A drying period, of course, must follow each application of material.

Another method is as follows:

1) Bleach and rinse.
2) Sand the surface smooth.
3) Tone lightly with the harvest toning stain.
4) Fill with harvest filler.
5) Apply sealer coat.
6) Sand lightly.
7) First finish coat.
8) Second finish coat.
9) Rub in usual way.

Still another method:

1) Bleach and rinse.
2) Sand to smooth surface.
3) Fill with harvest filler.
4) Seal with harvest sealer.
5) Sand lightly.
6) First finish coat.
7) Second finish coat.
8) Rub in usual way.

In all of the procedures just given, most of the color is obtained from the filler. When it is not practical, or where the price of the furniture will not permit using all mahogany or an all solid hardwood construction, here is a procedure that can be used:

Example: Coffee table, cocktail table or lamp table with walnut or mahogany top; and gum, tupelo or soft maple legs and base.

1) Bleach top only and rinse.
2) Sand lightly.
3) Pigment stain the legs.
4) Fill top only. (Colors to be matched for both filler and stain; or reduce the filler to slush consistency for use on legs and base.)
5) Spray sealer coat.
6) Sand lightly (fine paper).
7) First finish coat.
8) Spray clear lacquer on top (for rubbing), and a flat finish on the legs and base.
9) Rub top only.

Another method employed extensively for tables is:

1) Bleach top only; rinse.
2) Sand lightly (fine paper).
3) Fill top only.
4) Spray sealer coat over the entire piece.
5) Sand entire piece.
6) Spray color tinted lacquer over unbleached portion of piece—the color to be matched to the bleached and filled top of table.
7) Spray clear lacquer (for rubbing) on top, and a rubber-effect lacquer on the legs, etc.
8) Rub top only.

Light Toned Finishes With Tinted Bleaching Sealer

There is a bleached effect finish which can be produced without bleaching. It is obtained by the use of color-tinted sealer made by mixing lacquer enamels or tinting pastes alone, or in combination with dyes, into clear lacquers or sealers. The effect obtained depends upon the finisher's skill in preparing and using the materials, and the care taken in selecting

United's Quik-Bake One Minute Baking Enamel

A one-coat operation—no primer necessary. Speeds production tremendously—reduces man hours of labor and cuts finishing production costs.

Bakes in 1 minute at 500 degrees in a conveyor oven or in 8 to 10 minutes at 300 degrees F. in standard type ovens.

Made of pure synthetic resins. Bakes to a hard, tough, flexible mar-proof finish. Resistant to grease, dust, acids, alkalis, water and salt spray.

Can be roller coated, sprayed or dipped—available in white and pastel shades.

Quik-Bake is recommended for Refrigerators—Metal Cabinets—Metal Furniture—Metal Venetian Blind Slats—Fluorescent and other Lighting Fixtures—Kitchen Cabinets, etc..

[Order 5 gallons of Quik-Bake Synthetic Baking Enamel today and give it a production test.]

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SYNTHETICS AND
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FOR ALL SURFACES

United Lacquer Mfg. Corp.

General Offices, Laboratory, Factory: LINDEN, N. J.

NEW ENGLAND MFG. DIVISION, EVERETT, MASS.

Butt walnut in pearl grey finish. American Furniture Mart photograph.

clear grained light colored veneers and woods for making up the piece of furniture.

The use of too heavy a coat (or a too highly pigmented material will give the surfaces a painted effect, which is undesirable. This color-tinted lacquer, when made of lacquer sealer, is used a great deal, even after bleaching to make a finish appear lighter and to even up the tones of the wood.

A procedure wherein a light color-tinted bleaching sealer is used, follows:

1) Bleach and rinse.
2) Sand to smooth surface.
3) Fill the surface.
4) Apply color-tinted bleaching sealer.
5) Sand lightly (fine paper).
6) Spray first finish coat.
7) Spray second finish coat.
8) Rub the finished surface.

If the article is made of close grained wood, use a pigment stain instead of filler. In those cases where no bleach is used and the article is constructed of all soft woods, the bleaching sealer can be sprayed directly on to the smoothly sanded wood. For example:

1) Spray color-tinted sealer.
2) Sand; be careful of edges.
3) Spray first finish coat.
4) Spray second finish coat.

Another variation of this schedule—one that will give better color—is as follows:

1) Apply pigment stain by spraying or dipping. (This stain is matched to any of the bleached finishes.)
2) Spray sealer coat.
3) Sand lightly (fine paper).
4) Spray bleaching lacquer.
5) Spray finish coat.

Any off-colored woods can be matched to the overall color by using a shading lacquer in the same color as the bleached finish that is selected.

Bleaching and bleached finishes require more care in finishing and a more careful selection of woods for color. Bleached finishes are harder to patch. However, bleached finishes are the modern finish and they will become more popular as a better selection of woods and veneers become available, so it is necessary for finishers to become informed on bleaching procedures.

There has been a definite increased interest in fluorescent lighting during the last three years. The interest has not stopped with the use of fluorescent lighting units for overhead or general illumination, but has spread to the utilization of fluorescent or localized lighting units.

From the crucibles of war will come the patterns of peace—a world made better—with higher living standards and greater values.

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Chicago 14

Letters from Readers

Screen Stenciling Steel Rulers

From time to time we have noticed comment in INDUSTRIAL FINISHING in regard to silk-screen work. We are endeavoring to calibrate steel rulers, which have a black enamel finish, with a silk screen. Any information you may have in regard to methods and materials will be very much appreciated.—E.R.Co.

This can easily be done with the silk screen stencil. However, it is necessary to secure a photographic screen. Some very fine delicate work can be done with this type of screen, and I am sending you a sample Westinghouse panel which I ask that you please return to me when it has served its purpose. This work can be done much finer than the sample shows. Should you desire any additional information, I will be glad to work with you.—BERT ZAHN.

Shellac Sticks Wanted

We have received an inquiry from one of our customers, a large furniture manufacturer, asking where they could procure an assortment of shellac sticks in different shades; and also the necessary equipment for their application. —T.H. Co.

Read the advertisements in INDUSTRIAL FINISHING, especially some full-page ads in January 1946 issue.—ED.

Knife Coating Machine

We note with interest the inquiry of P.T. Co., on page 100 of December 1945 issue, for a "knife coating machine". We too are very much interested in getting some information on this type of equipment. In our case, we coat blackboards with a lacquer slating material and use two sizes of Masonite board 12x12-in. and 18x24-in. Any information you can give us in regard to this type of machine will be appreciated.—S.Co. (Toys and Games).

In your December issue, on page 100, I read where P.T. Co. (Tile Board) asks for information regarding a "knife coating machine". I am not in the machine business any more, but I did built knife and roller coating machines of this particular type some five years back. I am interested. If this firm will get in touch with me, I think we can arrange something.—EDWARD FITZGERALD, c/o Norman Co., 45 W. 16th St., New York 11, N. Y.

In your December 1945 issue of INDUSTRIAL FINISHING, I read of your request for information concerning "knife coating machines". I am in postion to manufacture same, as I have made several of these machines for tile board operators . . .

I feel sure you understand that this particular knife coating machine is used only on flat material. Each machine must be specially built to suit the material used. I do not have any photographs of the machine. However, I am sending you a sample of Masonite which has been coated in one of my knife coating machine systems.

The machine can be adjusted so that material of any thickness can be used, and the coating can be knifed to any thickness. My machine is automatic, and of conveyor type. It can be used to knife-coat plywood, masonite, or any other flat-surface material. It levels, closes pores, and leaves a very smooth surface; and it saves labor, sandpaper, and sanding. By this system, a top coat can be applied easily, whether lacquer or synthatic is used.—SIMON HAINES, 931 Fox St., Bronx 59, New York, N. Y.

We wish to thank you for publishing our inquiry on a knife coating machine in your December issue. We have checked a couple of leads that you sent us and expect to secure the information we desire. The way you handle inquiries such as ours is commendable and we want you to know that we appreciate the courtesies extended to us.—P.T.Co.

Peel-Off Coatings

In your July 1944 issue of INDUSTRIAL FINISHING, page 86, there was an article with reference to "Peel-off Coating of Plexiglass". At that time we did not have any interest in the item, but it has been called to our attention since.

We shall appreciate it if you will give us the name of the manufacturer, so we can contact him. There have been changes in our production meth-

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TEXON ONE COAT LACQUER for WOOD and METAL

Coatings with a film thickness three times heavier than usually obtained from ordinary lacquers can be achieved with one spray application. Will not penetrate porous surfaces and can be used for wood finishes without a sealer.

Such properties in one single coat have been previously obtained only with the so called "Hot Spray Process," or with great sacrifice in drying speed.

TEXON ONE COAT LACQUER does not require any special equipment for application and it can be sprayed as it comes in the can. Dries in 10 minutes, ready to handle. Produces a lustrous finish of fine texture with a marproof and elastic film of long wearing qualities.

Ideal for use where previously two or more coats have been applied. Has good adhesion on metal, wood, composition board, paper, etc.

Can be supplied in clear and all colors.

Write for YOUR sample NOW.

Note: *When writing advise us what article is to be finished. Quality and type of finish required. Method of application. If possible —send sample of unfinished piece and sample of finish desired.*

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ods, and this is an item in which we are interested at this time. — O. CASKET CO.

Read our reply to a similar inquiry, see page 96 of Jan. 1946 issue.—ED.

Sterrett's Article

In one of your latest INDUSTRIAL FINISHING magazines you published an article, "Infra-Red Drying of 2-Color Steel Drums", by Elton Sterrett. We would appreciate it if you would give us Mr. Sterrett's address, as we would like to obtain further information concerning the infra-red baking of steel drums.—S.E.CO.

In the December issue of I.F., page 122, there appeared an interesting article by Elton Sterrett, on drying steel drums with the use of infra-red.

We would like to know what type of hooks are used to carry the drums through the oven on the overhead conveyor, as well as the design necessary to give each drum the 1¼ turn while passing through the infra-red tunnel.

If you can supply us with this information or advise us where it may be obtained, we shall appreciate it very much.—O.U.CO.

We are referring you directly to Mr. Sterrett, who lives and works in Texas.—ED.

Roller-Coating Machines

In your October copy of INDUSTRIAL FINISHING I noticed the request from one of your readers for a list of roller coating machinery manufacturers. I would appreciate very much the same information as to the various roller coating equipment manufacturers. — R.MFG. CO.

Try the following:
Naz-Dar Co., Chicago 10, Ill.
Black Bros. Co., Mendota, Ill.—ED.

Bobby Pins; Lip Stick Holders

We are looking for equipment to lacquer bobby pins and hair pins in bulk, but have been unable to find anyone in Canada manufacturing equipment for this. Could you possibly suggest somebody in the United States? —B.B.CO.

We have the problem of finishing a large quantity of small brass stampings that are used in connection with a lipstick holder. These stampings are buffed to a high polish and are made from "rich-low" brass. This is a type of sheet brass that takes a very high gold finish polish in the buffing operation. After the brass parts are buffed they need to be lacquer coated.

In view of the fact that these brass stampings have to be produced in very large quantities, it has been suggested to us that the lacquer be applied in a tumbling barrel as a means of performing this operation quickly and effectively. The method appeals to us, but we have no experience with it. Would you be so kind as to supply us with some information on this type of finishing? Possibly an article has appeared in your excellent magazine, which describes this operation. If so, we will be very happy to receive some tear sheets describing how this work is done. Also, you may be able to put us in touch with a manufacturer of suitable equipment for this work. —T.P.CO.

With a letter we are sending you a reprint of an article previously published in I.F. about tumbling. While this method of lacquer coating might be used, we believe that you should also investigate the combination dip-whirling machine, one make of which is advertised every other month in INDUSTRIAL FINISHING.—ED.

Juvenile Furniture in Demand

There is a decided scarcity of quality infant and juvenile furniture on the West Coast. Offhand, a rough and not perfect survey would show that there is a market for about $30,000 worth of youths' beds per month, without counting cribs, play yards, nursery seats, high chairs and associated items. At present, most local items are not finished good at all. Runs and sags show in the finishes, sharp edges are almost bare, and not such good service prevails.

A small manufacturer who is a "square shooter" should be able to do nicely if he can present a neat line. The trade on the West Coast is much different from that in the East and Mid-West. Merchants out here are the "hard to crack" type, but once you are accepted and prove yourself to be square and not a domineering diamond-covered gorilla, there is more than an even chance to grow and prosper.—NORMAN ABRAMOVICE.

Conveyor Installations

We would appreciate receiving a list of firms specializing in conveyorized installations for furniture and radio cabinet finishing. This system should provide for forced drying at a temperature of approximately 130° F.—S.I.

Try Davidson Engineering Service and Jensen Specialties, both of which are advertised in I.F.—ED.

MANY **N. G. R.** STAINS

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PERMATONE STAIN

The standard of comparison

for — permanence of color
— brilliance of color
— depth of color
— variety of color
— beauty of color
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for — speed and ease of application
— low production cost per piece

Exclusive Product of

GRAND RAPIDS VARNISH CORP.

GRAND RAPIDS, MICHIGAN

Makers of the Famous Guardsman Finish

Can Supply Tumbling Barrels

In reply to your inquiry, we are pleased to send you illustrated descriptive literature and price lists covering tumbling barrels merchandised through this office. All of these tumbling barrels can be adapted to any requirement utilizing the tumbling principles, whether the articles consist of wood, plastic, or various types of metal.

As to your interest in applying paint, varnish and lacquer coatings, these are best treated in wooden barrels, or in metal barrels with wood linings. The ideal type is the "churn barrel" such as is used in the making of butter. In pre-war days this particular type of barrel was fabricated in Rockford, Ill., but during the war that firm sold out its patterns and interest due to a Federal directive classifying their production as being non-essential in support of military objectives. The new firm, who took over the patterns, has not yet gotten into production of this type of barrel.

Historically, a nationally famous toy concern using wooden dowels for construction, has worked out a formula or routine for finishing wooden parts by tumbling them in a measured quantity of lacquer to a "dry finish". This method, however, was found to be very delicate, as lacquer is temperamental in this operation in its response to temperature, humidity, etc. This firm is now limiting its tumbling operations to the tumbling of wooden parts in transparent wax to obtain a "natural finish" for its wooden toys.—H. M. KENTON & Co., 9 S. Clinton St., Chicago 6, Ill.

Fish Bait Finishing

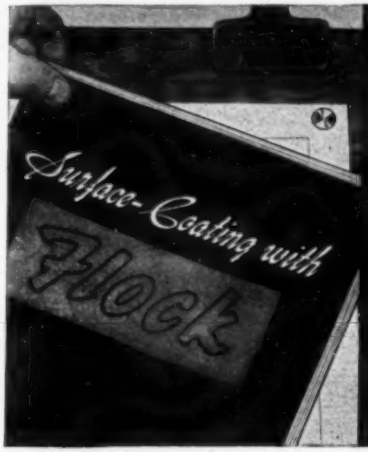
Referring to F. F. Co's. problem, as stated in a published letter in December 1945 issue, pages 96 and 98, we have asked our Texas representative to call on F.F. Co., and work with them with their problems.

The lure manufacturers with whom we are familiar usually impregnate the wood against moisture. Then they apply a body coat of white lacquer, and then build up the finish with lacquer in white, red or other colors.

It seems that the F.F. Co. is chiefly interested in a quick method of applying a fish scale design. So far as we know, this is still being done by using a piece of lace as a stencil and spraying through it with lacquer. Following this operation it is customary to apply a protective coat of clear lacquer.

We believe that it might be possible to develop a method of printing this design—rolling the bait under a printing plate. To our knowledge no one has developed such an operation. —X. Co.

A revolving rack, with dip-coating tank at left and semi-circular force-drying unit at right. The wheel is 20-ft. in diameter and has bearings at top and bottom of its vertical shaft. The hooks, from which dipped articles are hung, are 6½-ft. above the floor. Photograph, courtesy of the O. Hommel Co.



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Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide SOUND DEADENING • TEMPERATURE INSULATION • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE.

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Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced — SUEDE LEATHER • FURNITURE UPHOLSTERY • INTERIOR AND DRAPERY FABRICS • VELVET VELOUR • MOHAIR.

It contains color samples and a wealth of data showing how surface finishing with Rayco flock is used to transform paper, cloth, cardboard, wood, metal, glass, plastic, etc., to synthetic effects of genuine

SUEDE • VELVET • VELOUR
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Available in a host of colors in synthetic and natural fibres, Rayco flock has solved many a finish problem in a simple and economical yet entirely practical way. See that your Design Engineer knows all about it!

REQUEST ILLUSTRATED COLOR BOOK: "SURFACE COATING WITH FLOCK"

RAYON PROCESSING CO. of R.I. INC.

58 TREMONT ST., CENTRAL FALLS, RHODE ISLAND

Developers and Manufacturers of Printing and Coating Flock

2-Color Flock Finish

In connection with our manufacture of several models of portable radios for export, we have run into the problem of 2-color flocking on wire mesh, in relation to speaker grilles. We have referred to the Thomas Register, but the list is scant, and most of those contacted were not capable of doing the type of work we require. We are sending you a sample strip from a screen which we used in 1941; and ask that you please send us a list of firms who you know can do this type of flocking.—M. RADIO CO.

We suggest that you contact Mr. L. D. Jacobson of the Flock Process Co., 2 Quincy St., Norwalk, Conn. This firm does flock processing and, while we are not acquainted with your problem, we feel that you will find some solution of your problem if you contact them.

Incidentally, we are fabricators of "Duron", a pressed wood-fiber product similar to Masonite. Duron is frequently used for radio backs and loop supports in the radio industry.—MELRATH SUPPLY & GASKET CO., INC.—Philadelphia 34, Penna.

Painting Aluminum Slats for Venetian Blinds

We would appreciate your giving us information relative to a problem we have regarding the finishing of Venetian blind slats. We contemplate using aluminum slats in concave form and we wish to obtain the paint with which to finish this metal. It is desirable to have a glossy coated finish and we would appreciate knowing about any experience that other concerns have had with the use of paint on aluminum.

We wish to use the best methods of painting these slats, and if you have any suggestions regarding machinery that can be used for painting and drying, we would appreciate your advising us. We would also like to know the names of concerns that we might contact in procuring the proper paint for aluminum slats. Any help you can give us will be greatly appreciated.—L.W.Co.

You will have no trouble in obtaining suitable coating materials for your aluminum slats. See concerns who advertise metal finishes in I. F.

The coating material can be put on the slats by spraying, dipping or roller coating. Special machines are built for roller coating Venetian blind slats. We have written to ask if these firms are still in business, but so far have received no reply.

For spray equipment—also, infrared drying setups—see advertisements in any issue of this magazine.—ED.

Masco Chemical Co. Occupies New Quarters

The Masco Chemical Co., Inc., manufacturer of lacquers, thinners, paint and varnish removers, now occupies its newly erected buildings at 58-64 John Hay Ave., Kearny, N. J. The firm manufactures shelf goods under the well known Masco and Lightning Brand trade marks.

Surbrook New Comptroller of Detrex Corp.

H. W. Surbrook has been appointed comptroller of Detrex Corp., Detroit 27, Mich., manufacturer of industrial cleaning machines and materials, and drycleaning equipment.

H. W. Surbrook, Comptroller of Detrex Corp.

In announcing this advancement Mr. A. O. Thalacker, Vice-President and General Manager, points to the excellent record of Mr. Surbrook as head of the Company's Accounting Department during the war.

Fidelity Chemical Engages Guthrie

As a step in its "plan for postwar expansion," The Fidelity Chemical Products Corp., 410 Riverside Ave., Newark 4, N. J., manufacturer of cleaning compounds, stripping compounds and detergents, announces the appointment of John M. Guthrie as Technical Director. Mr. Guthrie has been engaged in research and development work for the Aluminum Co. of America and The Bell Telephone Laboratories for the past 12 years.

Fidelity has also appointed three new sales service engineers: Allen A. Ainsworth for Northern New Jersey; Seymour B. Lonyai for Newark and South Jersey; and Abraham Schorr for New York City, including the Bronx.

BAKING ENAMELS · LACQUERS SHELLAC · ENAMELS FILLERS · SEALERS SUPPLIES · PRIMERS STAINS · SYNTHETICS VARNISHES

NEW PERIOD LACQUERS Are Uniform & Dependable

Manufacturers with rigid modern production schedules require a uniform and dependable lacquer that delivers constant high-quality performance. New Period Lacquers have established an outstanding reputation in production use in many plants with diversified operations.

The complete New Period line includes sealers, gloss, semi-gloss, clear and pigmented lacquers. They are formulated for various methods of application and for any production setup.

A production sample will convince you of its superiority.

Our complete line of New Period finishes and our laboratory facilities are at your service. Write us!

NEW PERIOD Production Finishes

ESTABLISHED 1912

NEW YORK WOODFINISHERS' Supply Co.

Questions and Answers

Sand in Gear Case Castings

We are encountering difficulty with sand in cast-iron gear-case castings, resulting in premature loss of bearings. We have tried sand blasting and priming the portion of the casting that comes in contact with the oil, but this does not stop our trouble.

Could you tell us if there are successful means of thoroughly removing sand and grit, and if a low-pigmented sealer can be obtained which will be unaffected by oil?—PAINT SHOP FOREMAN.

To start right at the beginning, I suggest that you consider the vacuum cleaner method. The adoption of this method is based on this reasoning: "How better to remove dirt, chips and core sand from the inside of a rough casing, to prepare it for painting, than by means of a powerful vacuum cleaner unit designed especially for that purpose?"

The powerful motor-driven unit shown in Fig. 1 (smaller sizes can be had) is readily portable. It has

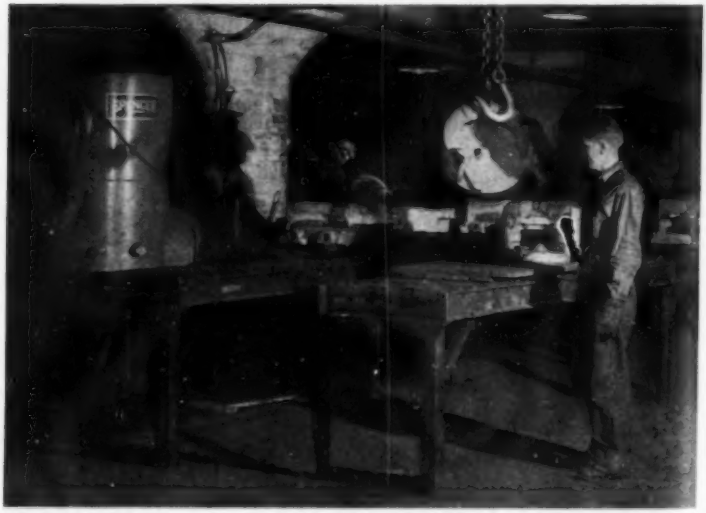
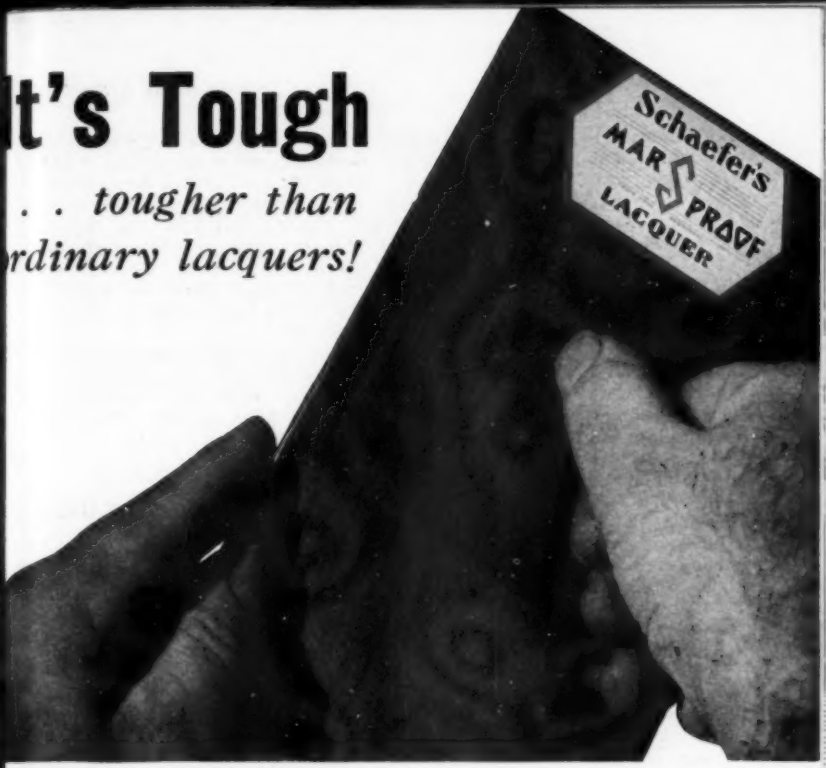


Fig. 1—Cleaning heavy castings. In the background a workman is using a suction hose which is connected to a powerful portable vacuum-cleaning outfit.

It's Tough

. . tougher than ordinary lacquers!



try to scratch or mar it . . . . . can't be done!

Yes, here's a tough piece of goods, a lacquer finish that will meet the most critical requirements of postwar production. A nation hardened to bulldozers, tanks, battleships, monster planes and subs, will accept nothing less than a product finish that endures the elements, and the hardships of constant usage. Schaefer's Mar Proof Lacquer is a finish that cannot be marred or scratched. Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods. Economical; gives plenty of coverage; dries quickly. Our Mar Proof Lacquer Sealer is recommended with it for a first-coater.

Now get off to a good start on your post war production. Use this tough mar proof lacquer, and obtain satisfaction right away. Working samples furnished, without obligation. Write for them!

The Schaefer Varnish Company, Inc.

Louisville, Kentucky

an extension hose that draws sand, dirt, chips and all other foreign matter from inaccessible nooks and crannies of complicated cored castings, such as lathe headstocks, gear boxes and certain other parts. Not only does this powerful vacuum remove the dirt, but it prevents the dust from drifting around the shop, as is the case when it is brushed out or blown out by compressed air. With this type of vacuum system, all the dirt is trapped and held in a separator unit which is integral with the suction apparatus.

After suction cleaning, the castings are sprayed on the outside with a coating of light gray alkaline-type synthetic primer which has high-grade adhesive properties. This prevents the casting from rusting and it also serves as an excellent bonding material for the subsequent heavy-bodied filler.

Machine tools include many castings which require internal finishing with an oil-resisting sealer (crank-case sealer.) Typical of these are gear boxes wherein the gears run in a bath of oil. To handle such internal spraying with maximum efficiency, a plant I have in mind uses an 18-in. extension nozzle having a 45° offset, as shown in Fig. 2. Not only does this enable the operator to reach into otherwise difficult corners and pockets, but it also permits him to stand well away from the rebound blast of spray.

The oil-resisting sealer used for this purpose is a pyroxylin-type material which dries within 30 minutes after application. — C. RAYMOND SYER.

Fig. 2—Spraying the sealer into deep places with an extension spray gun.

Cleaning Insides of Used Steel Drums

We are local representatives for a manufacturer of infra-red drying systems, and one of our customers is ready to purchase an infra-red system as soon as he is able to get a system whereby the paint, grease, and what-not can be successfully removed from 50-gallon paint or oil drums.

Subject's business is the purchasing of these drums "as is", and removing the contents, cleaning them up, degreasing them, preparing them for paint and then refinishing them with a good baked enamel. In other words, they buy these drums from the used market of various industrial plants and sell them back to meat-packing outfits, etc., for re-use.—E.Q.Co.

The kind of solvent or "remover" to use for cleaning the interior of a used steel drum will depend, to some extent, upon what the contents of the drum were. Makers of the paint and varnish removers, strippers, cleaning compounds, etc., can supply you with suitable materials.

To make these cleaner or re-

Save Production Time and Material . . . Increase Production Profits with

Our licensees' customers report savings up to 40% with Chadeloid Stains, which conserve time and materials . . . cut down production operations . . . and help convert sap wood into products which compare favorably in appearance with those manufactured from the finest woods. To get these results, see any of these

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Tomlinson Paint & Varnish Company
Trojan Lacquer Co.
Twin City Varnish Co.
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mover compounds reach all interior surfaces, the drums should be rotated while in horizontal or tilted position, or turned over and over endwise, etc. Also it often helps to put into the drum a "cleaning chain" made especially for this purpose. The links of this chain exert a surface scraping action while the drum is rotated or turned end over end repeatedly. Drum cleaning and drum-handling equipment can be obtained from The Vol-U-Meter Co., Inc., Buffalo 16, N. Y.—ED.

Painting Recessed Letters

We are currently encountering two problems in connection with painting some of our floor sanding machines. One of our machines utilizes a polished aluminum casting in which our trade-name is recessed. It is our desire to fill the recessed letters with paint, and of necessity the painting must be done after the polishing of the casting has been completed. The letters are too small to permit successful masking on a production basis, and we were wondering whether or not you could advise us as to how this problem has been handled by other manufacturers?

Our second problem is of a similar nature. In this case also we have a polished aluminum casting which has a recessed insignia. In the center of the insignia is the name of the machine, with the letters at the same height as the area surrounding the recess. It is our desire to paint the background of the recess, leaving the letters polished as well as the area surrounding the recess. Here again, masking on a production basis would not be practical. We will will appreciate your advice in connection with this problem also.—M.H.Co.

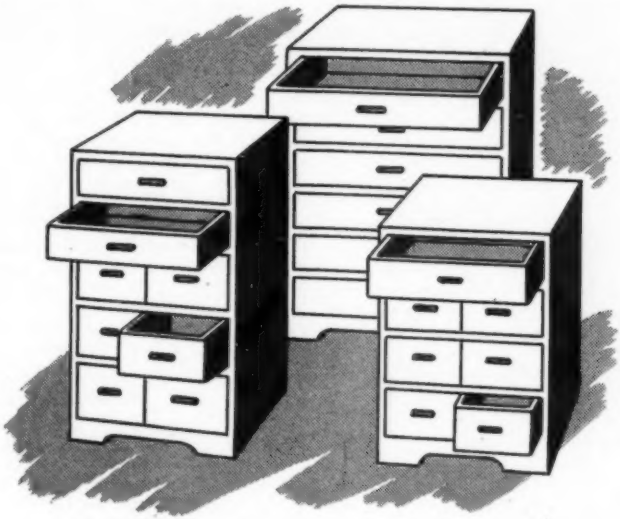
In many plants that I have consulted, a mixture of japan and white lead, mixed to a paste consistency, is being used. Generally two parts of paste to one part of japan will be the correct proportions to use to obtain desired results. Any color of japan can be used. It is wiped on the surface to be painted, in most cases, after the machine is assembled. The operation is generally done at the inspection tables. This system is now being used by the Royal Typewriter Co., Hartford, Conn., and through experience has proved to be the most efficient method.

Other manufacturers use a color paste and thin it down with toluol to the consistency desired. Generally this is sprayed on. It will be necessary to grease the surrounding surface, in this case, before spraying. The spray method, using a suction cup and low pressure, is desirable if this method is adopted.

From my observations, I feel that the first method mentioned here would be more practical and would eliminate any masking or use of expensive equipment. Suitable materials can be obtained from your regular supplier, or from advertisers in this publication.—C. RAYMOND SYER.

Coating Small Metal Stampings

We have carried out considerable experimental work in the finishing of small flat metal stampings. We find that the greatest problem to overcome is that any paints or lacquers, which we have tried, all



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Add distinctive appeal to your products by enhancing the beauty of the interior surfaces as well as the exterior. The rich, velvety texture of Cellusuede Flock lends a luxurious, alluring appearance . . . provides a neat, protective coating at very little cost. You'll like the striking results you can achieve with easy-to-apply cotton or Rayon Cellusuede Flock. Available for immediate shipment in an assortment of colors.

Color Card, Booklet, Prices Free on Request

CP *Cellusuede Products, Inc.*

ROCKFORD, ILLINOIS

pass through a sticky or tacky stage in the drying process. As a result, the small parts adhere to one another and, of course, the finish is spoiled when they are separated.—J.J. Co.

Our method of handling a similar job is as follows: We use six wire mesh trays, each wood framed and 36-in. square. The wire mesh is small enough to prevent metal parts from tilting or falling through; they lie flat on the tray. Each framed wire mesh tray is arranged to rest on a frame work consisting of four well braced legs with rubber-tired casters at the feet. The setup looks like a table with a wire mesh top and swivel casters for feet. It stands 38-in. high.

Now we spread the metal stampings over the wire mesh top, so that no two pieces overlap or even touch one another. Next we wheel this loaded table into the spray booth and with low air pressure and a quick drying lacquer, our man sprays them with a good wet coat. He holds the gun so he sprays straight down onto the spread-out parts and through the wire mesh. The small pieces do not blow away because they are resting flat on an open mesh screen. He can spray a loaded screen in one minute. This one is moved out of the booth and another loaded portable rack is moved in.

Drying can be speeded up, if desired, by the use of heated air gently blown over the coated work with electric fans. By the time the sixth portable rack load is spray-painted, the first one should be dry enough to be turned so the other side can be painted in the same way.

A quick way to turn the metal stampings over, without handling individual pieces, is to have an extra wire mesh tray, lay it upside down over the top of the tray load that has just become dry, clamp the two together and turn them over. Then lift the used tray off and the stampings are lying, with their unpainted sides up, on the extra wire mesh tray. This will work sometimes—not always. If the stretched wire sags in the middle the least bit, the painted stampings may slide around over one another when the trays are turned—unless something flat and firm is held under each tray when the two are put together and turned over.

When the screens become so clogged with paint that they cannot be used satisfactorily, they can be cleaned with solvent, paint remover, or cleaning compound. While this may not be the fastest or most economical way of painting small parts, I know from experience that it works.—F. HAGAN.

In regard to the painting of small metal stampings and the difficulty J.J. Co. are having, I suggest that said parts be barrel plated, either zinc or cadmium, and then dyed. Dyes of this nature can be obtained from the Rheem Research Products, Inc., Standard Oil Bldg., Baltimore, Md.—H.A.H.

New Chicago Plant to Sell Cleaning Materials

"Gunk Chicago," is the name of a new chemical plant, licensed by The Curran Corp., Chemical Engineers, Malden, Mass., to chemically process and sell its patented Gunk, self-emulsifying solvents which are widely known and used for degreasing and decarbonizing.

The new plant will render more efficient service to Gunk jobbers and consumers in the middle west. Manager of the new Chicago plant is Mr. Charles J. Dempsey; the sales manager is Mr. Donald Dempsey.

"Digby, get off those chests!!! ALL S-I-P WEAR MASTER finishes have that mirror-smoothness that makes you want to dance!"

THE FINISH THAT SELLS YOUR PRODUCTS

S-I-P WEAR MASTER Finishes are again available in all their pre-war richness and beauty . . . As easy to use as they are to look at.

New . . Improved . . WEAR MASTER Clear Lacquers

Bring out the full beauty of your cabinet work and fine woods . . . Work the way foremen want them to work . . . Laboratory controlled and fully guaranteed.

STANDARD INDUSTRIAL PRODUCTS, INC.

Wear Master

SMOOTHIE SAYS:

. . . and for the best final clean up you've ever seen, use S-I-P CLEEN-UP Polish. It whisks away dust, dirt and fingerprints. I'll be glad to send you a FREE trial sample on request.

EVANSVILLE 4, INDIANA

Materials Supplies Equipment

Non-Corrosive Rust Remover

A new rust remover has been perfected and a plant set up for its manufacture by the Nox-Rust Chemical Corp., Chicago 8, Ill., makers of rust preventives. War-born research helped company chemists to develop successfully a product scientifically compounded to: 1) wet metal thoroughly, 2) dissolve rust scale rapidly, 3) remove it completely, and 4) be relatively non-corrosive to steel even under conditions of long exposure.

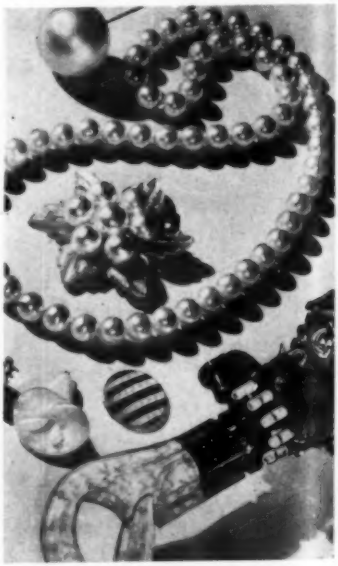
This new rust remover can be applied by usual methods such as brush, spray, and dip, but its long life and rapid action in otherwise inaccessible crevices make dipping desirable wherever it is practical.

H-Scale Helps Make Lustrous Finishes

Increased production of Celanese H-Scale, a synthetic pearl essence, is announced by Celanese Chemical Corp., a division of Celanese Corp. of America (180 Madison Ave., New York 16, N. Y.) to meet greatly enlarged demands occasioned by the present shortage of fish scale used in jewelry and plastics dips, lacquers and metallic finishes. It produces unique finishes resembling pearls, procelain, pottery, cloisonne, gun metal, statuary bronze and hard-enamel, and is used for individual reflection affects with lacquers and coating materials. Also, it is used as an extender with natural fish scale.

H-Scale is a dispersion of very minute pure white nacreous crystals suspended in vehicles convenient for incorporation into various types of coatings. Because of its remarkable brilliancy, only a small amount is required in a clear lacquer or dope to produce a film with a silvery sheen or luster.

Readily incorporated in lacquer and other coating materials, H-



H-Scale, a synthetic pearl essence produces beautiful finishes resembling pearls, porcelain pottery, cloisonne, gun metal and statuary bronze.

QUALAVITE

tested for Resistance

QUALAVITE has been formulated to produce a finish that will positively resist the ravages of alcohol, water, moderate heat, abrasion, impact and will not scratch white seven days after application. This super lacquer has been laboratory tested to stand the "gaff." It is hard and retains its flexibility and permanency indefinitely. QUALAVITE is as modern as the atom bomb. If you do not know QUALAVITE 100E, then your use of it will prove its efficiency. Write for quotations.

Manufactured by the Makers of

AMERICA'S FINEST PADDING LACQUER

QUALASOLE

QUALATONE PRODUCTS INCORPORATED

21 GAY STREET **NEW YORK 14, NEW YORK**

Scale can be applied by spraying or dipping. The coating industry generally applies this H-Scale in individual coats over a metallic or pigmented surface. Irregular or curved surfaces enhance the artistic effects. The technique of application does not differ much from ordinary methods employed in spraying top coat lacquer except that a very ingenious means of orienting the pearl scale in clear lacquers may be adopted by the spray operator to produce decorative and novel effects. Four to eight ounces of H-Scale per gallon of clear lacquer is usually sufficient to produce the decorative effects desired.

For use in pigmented lacquers required to withstand outside exposure, it is desirable to first mix the pigmented lacquer with clear lacquer. Ten parts of a pigmented lacquer of the darker shades mixed with 90 parts of a clear lacquer make a suitable combination. Twenty parts of a pigmented lacquer of the lighter shades and 80 parts of clear lacquer may be used. Approximately 1 to 1½-lbs. of H-Scale to a gallon of pigmented lacquer prepared in this manner will give the desired results. The film is then rubbed and polished, producing a high gloss with excellent surface depth.

Excellent brushed brass, silver, copper, and statuary bronze effects are accomplished economically through the incorporation of a small quantity of H-Scale in a clear or tinted top coat lacquer applied over the desired base coat. These finishes are particularly popular on caskets, novelties, and fixtures.

Various realistic wood grain finishes having a depth of finish are created on metal surfaces by applying a coating of clear lacquer containing a small amount of H-Scale over the base color coat prior to the graining operation. Modern high grade metal furniture, office fixtures, automotive instrument panels, etc., are examples.

Applied over colors in high gloss lacquer, H-Scale gives the appearance of fired finishes, such as, China, pottery, and porcelain effects. It may be used for ground and top coats for pearl finishes, cloisonne, gun metal, statuary bronze, and other novel and decorative finishes.

H-Scale may also be thinned with a suitable thinner such as butyl or amyl acetate, or any other convenient vehicle, and used in this form as a finishing coat over the ground coat or on plastic rod, tube, or sheet stock. A mist coat of clear lacquer may then be applied.

Removes Flux and Welding or Brazing Scale

Highly satisfactory results in removing flux, and welding and brazing scale, with Optimus Deoxidant No. 3, are reported by Optimus Detergents Co., 209 Church St., Matawan, N. J., manufacturers of cleaning materials.

Not a bright dip, and not intended to replace acid in ordinary pickling, Optimus Deoxidant No. 3, being acidic in nature, may be used on most metals as a mild deoxidant without serious etching of the surface. It is used regularly on welded steel tubing, brazed, hot-rolled and cold-rolled steel, copper, brass, welded aluminum, cast iron, bronze castings and most aluminum alloys.

Ease of operation is provided. It is only necessary to deoxidize for the required time, give the work a quick rinse in hot water, and the job is done.

for New Finishes and Accessories

HERE AT "Old English Manor," the estate of E. W. Hagadorn, president of Finishine Laboratories, Inc., is the experimental laboratory and showroom of FINISHINE, a unique and entirely new procedure as a proving ground for new finishes, supplies and accessories.

Here, we have applied the Lubrisol Pad-O-Paque process for finishing the interior woodwork; our waxes have been applied on the floors, our shellacs have been used for base coats, and our varnishes have been used on some parts of the trim and floors. Thousands of dollars worth of rare antiques have been finished with different Finishine Laboratories, Inc., products from different types of shellac gums cut with our anhydrous alcohol, to our padding Lubrisol Pad-O-Paque process. All defects in wood have been repaired with our famous Lacstix and other types of stix, depending on the finish that was used in the antique, using our latest deluxe "Electro-Knife" burning-in knife.

Our 200-page Catalog fully describes and illustrates the many FINISHINE items, too numerous to mention here, that will help the finisher today to reproduce and restore all the beauty and sales appeal of the old masters. Send for it TODAY!

finishine LABORATORIES INCORPORATED

627 TALLMAN STREET • SYRACUSE 4, NEW YORK

All-Purpose Industrial Oven

New, mass produced RS industrial ovens, in sizes from 2x2x3-ft. to 4½x6x9-ft., are adaptable for all baking and drying processes up to 500° F. Manufactured by the Despatch Oven Co., Minneapolis 14, Minn., these units are self-contained and require only lead-in of gas or electricity for the complete installation.

A special loading dolly and shelf arrangement permits easy loading and maximum use. Upright position also means easier loading plus floor space saving. Automatic controls and quick starting make oven readily adaptable from one type of operation to another.

These ovens are now in successful use on radio, radar, coil and armature drying and baking; and for baking a variety of synthetic finishes, varnishes, lacquers and enamels.

Special safety features and complete insulation insure comfort and health of workmen. Uniform temperature, high volume air flow, and controlled volatile exhaust—these assure quality and uniformity of processing, as well as reduction in baking time.

Wyandotte 97 Paste Now Packed In Steel Drums

Wyandotte 97 Paste — bright metal and enameled surfaces—is now available in full flush, lock-top steel drums. A handy and sturdy Wyandotte steel dispenser

Useful ovens for baking coatings in and on electric coils and on metal parts.

STAINS
GLAZES
SHELLAC
ENAMELS
UNDERCOATS
LACQUERS
SEALERS
NOVELTY FINISHES

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

- **FOR APPLICATION BY ALL METHODS**

JAMES B. DAY & CO., CHICAGO

is also now available to those who need it.

Wyandotte 97 Paste is a quick acting and free rinsing cleaner. It is ideal for "spot" cleaning, for removing marks from finished floors and for use by mechanics where hands become heavily soiled.

It is easy to get Wyandotte 97 Paste out of either the small dispenser or the large drum. As an added protection, the interior of the large drum is enameled and the interior of the dispenser is varnished. Both steel dispenser and steel drum are equipped with lock tops which assure the user all of the quality put into 97 Paste in its manufacture.

The same pleasant odor which has been found in Wyandotte 97 Paste since its limited introduction in 1942 is still maintained. The pink color, the metal dispenser, and the steel drum are new and are available to users for the first time.

Binks Spray Gun

A light-weight spray gun with several improvements over pre-war models has been announced by the Binks Mfg. Co., 3114 Carroll Ave., Chicago 12, Ill.

This Model 19 gun has several interesting features. Its well balanced weight is only 1-lb., 7-oz. It is easy to operate. The grip is designed to fit comfortably into the hand. This combination helps to make a reduction of fatigue.

A large air passage through the gun results in better utilization of the air. All controls are conveniently located at the back. The spray pattern is quickly adjustable from round to flat, with all widths in between.

The gun has few parts, which makes it easy to take apart for

The body is aluminum, nickel plated.

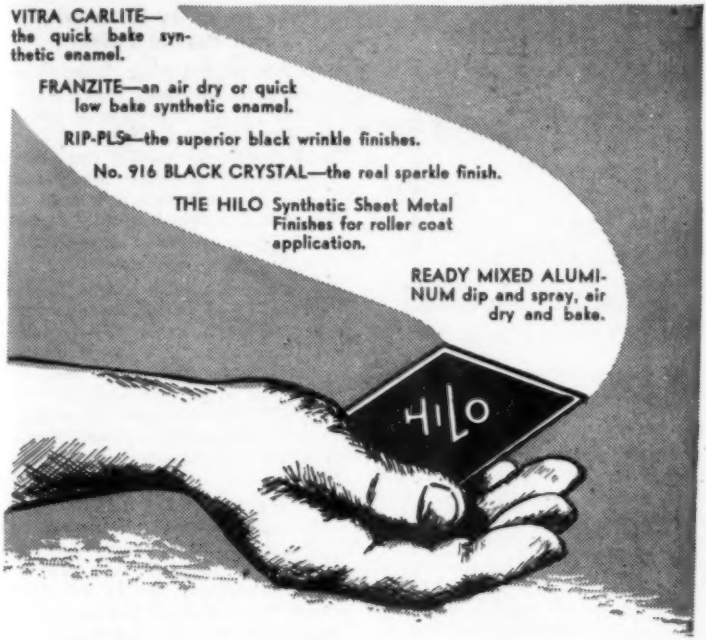
cleaning or repair. Each part is of high-quality long-lasting material for its particular function. The body is lightweight, durable aluminum; the air nozzle is bronze; the fluid nozzle a special hardened steel. The entire gun is heavily nickel-plated. A hardened plate where the trigger contacts the air valve stem prevents wear at that vulnerable point.

Other features include a nozzle of the self-centering type, designed on the tapered seat principle. Air cannot leak back through the retainer ring. The air valve is of the superior cartridge type. Hose connections are standard. The needle valve is easily adjustable.

Portable Infra-Red Baking Lamps

Newly designed, vastly improved over previous models, two new types of portable electric infra-red equipment are announced by the Carbomatic Corp., Dept. P146, 117 W. 63rd St., New York, 23, N. Y.

These new models are designed for maximum efficiency and flexi-


VITRA CARLITE—
the quick bake synthetic enamel.
FRANZITE—an air dry or quick low bake synthetic enamel.
RIP-PLS—the superior black wrinkle finishes.
No. 916 BLACK CRYSTAL—the real sparkle finish.
THE HILO Synthetic Sheet Metal Finishes for roller coat application.
READY MIXED ALUMINUM dip and spray, air dry and bake.
HILO

"Glad to have them back"

This is a mild expression of the enthusiasm with which former users of Hilo Protective Coatings are greeting the return of the above products.

A trial lot of ten gallons of any of these Hilo favorites will be sent on approval.

HILO **HILO VARNISH CORPORATION**

42-60 Stewart Avenue, Brooklyn 6, N. Y.

2420 Washburne Ave., Chicago 8, Ill. • Park Sq. Bldg., Boston 16, Mass.

Models R12 and W6 appear above.

bility. The upright vertical stands for both models are made of all-steel channel, electrically welded, for durability and rigidity. Both models are mounted on ball-bearing swivel casters for mobility.

W-6 model has a new round, all-aluminum reflector, 24-in. in diameter, which may be raised or lowered as required over the entire height of the upright of the stanchion. A new adjustable arm permits the direction of the reflector over an arc of 180°. The unit is equipped with a heavy duty extension cord.

R-12 model accommodates 12 lamps, and is equipped with three toggle switches, permitting the operation of 1, 2 or 3 rows of four lamps each. The unit is designed to accomodate up to three reflectors (of 12 lamps each) and is designed so as to enable the user to make up banks or tunnels of any design or shape.

Standard make reflector type (R40 or RE40) infra-red lamps are used in both models, and either 125-watt or 250-watt size lamps may be used.

Hose to Spray Hulls with Hot Plastic Paint

A synthetic rubber hose reinforced with Fiberglas inner braid, through which hot plastic paint can be run at temperatures of 300° F, has been developed by engineers of the DeVilbiss Co., Toledo, Ohio. The Fiberglas-reinforced hose is now being supplied to the United States Navy and has the possibility of wide civilian application.

The Navy uses the hose to deliver hot paint in a spraying operation on ships' hulls. The plastic paint forms a "skin" to minimize barnacle growths—a war-time development that increased the effective range of vessels in tropical waters. Composition of the plastic paint has not been revealed by the Navy.

Fiberglas reinforcing for the hose was selected after tests of some two months, because of its high tensile strength and heat-resisting qualities needed to withstand the operating pressures and temperatures encountered.

Hot plastic paint application on hulls doubles the time a ship can stay out of dry dock before barnacle removal, and still operate efficiently. It is now standard Navy practice to spray the hulls of vessels before they leave for missions in warm water areas. With spray painting equipment involving the use of this new hose, a crew of 140 men can apply the hot paint to an entire battleship hull in 16 hours.

Barnacle accumulation, greater in tropical waters than elsewhere, decreases the speed of vessels and necessitates increased fuel consumption. The barnacle bugaboo has been a worry of shipping interests for centuries.

Marine investigation has shown

Eradite

ERADICATES WILD GRAIN

IN FIR, PLYWOOD

A Straight Prime Seal for Plywood

Fir plywood has become a widely used commodity in present day production because of it's economy and ease of handling. The one disadvantage of using plywood has been the trouble and cost of hiding the wild grain. ERADITE has eliminated this disadvantage. ERADITE is a pigmented prime seal especially formulated to eliminate the wild grain. ERADITE penetrates evenly with one coat and will cover from 400 to 600 square feet per gallon. ERADITE can also be dipped or sprayed. ERADITE is the new, cost-cutting method of eradicating wild grain. Can be reduced 50% with ERADITE REDUCER.

ERADITE—*AN ECONOMICAL TREATMENT*

H. BEHLEN & BRO., INC.

10 CHRISTOPHER STREET, NEW YORK 14, N. Y.

that a 12-month accumulation on a 10,000-ton vessel may weigh as much as 30 tons, which fact is the basis of the maritime regulation that requires all ships to dry dock once a year for hull cleaning and barnacle removal.

The new paint spraying hose, reinforced with two inner braids of neoprene-coated Fiberglas yarn, manufactured by Owens-Corning Fiberglas Corp., has a minimum bursting pressure of 2000-lbs. per square inch. Since the hot plastic paint is forced by compressed air through the hose at a pressure of 100-lbs., adequate margin of safety to the operator is allowed, and deterioration of the rubber is minimized. The hose, ½-in. inside diameter, will withstand maximum temperatures up to 400° F.

LOOK AT THAT!

"That" is a load of overspray ⅜" thick, STRIPPED off a booth whose walls were protected with DOSTER BOOTH KOTE. It keeps booth walls clean. Does not powder or flake.

JUST DAUB IT ON And, when loaded with overspray deposit—

JUST STRIP IT OFF as easy as peeling a banana.

Stop worrying about your spray booths—send in today for 5 gals. of

DOSTER BOOTH KOTE

and prove its economy and superiority.

5 gallon Pails at $1.25 per gal. F. O. B.

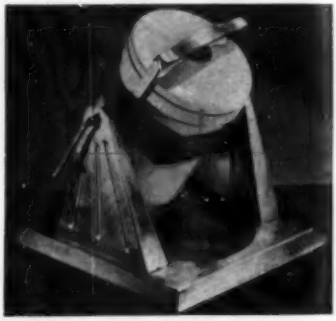
DOSTER & CO.

4840 W. Superior St., CHICAGO 44, ILL.

Small Tumbler-Mixer

The Andrew Technical Service, 111 E. Delaware, Chicago 11, Ill. (formerly American Technical Co.) announces an improved hand-driven Tumble Jar unit, applicable to laboratory tests in connection with colors, paints, varnish, etc.

The unit consists of a chemical stoneware cylindrical jar, 6-in. in diameter by 8-in. high, with reinforced rim, rubber gasket, ceramic cover, metal cover clamp for leak-proof closure, all mounted on a sheet metal base with crank to permit rotation by hand. Since the opening is the full diameter of the jar, filling, emptying and cleaning are facilitated. Being hand-driven, with bearing surfaces of brass against steel, there is no danger of sparking; hence the unit is perfectly safe for handling inflammable solvents or materials.



For mixing small quantities.

These units are very useful for testing water-repellent coatings for textiles. Tests which specify the Tumble Jar are now part of Quartermaster Corps test methods for fabrics.

Overall dimensions are 13¼x13¼ by 15-in. high. Motorized units are also available.

SEA-LAC

for EVERY COATING PURPOSE

PROVED IN WAR!
IMPROVED FOR PEACE!

All through the war, SEA-LAC finishes were called on for all kinds of service. As specialists, we had the know-how to make good . . Now, with our war-gained findings, we offer for peacetime purposes improved finishes for every coating purpose . . Tell us your need and learn how we can serve you.

DURALAC CHEMICAL CORPORATION
LISTER AVENUE, NEWARK 5, N. J.

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
1142 N. Meridian St., Indianapolis 4, Ind.
Telephone ..... Riley 6771

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President ..... W. H. Rohr
Vice-President ..... E. A. Dosch
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Subscription Rates Per Year
U. S. and Possessions $2.00
Canada and Foreign Countries $3.00
(No subscription solicitors are employed)

Editorial

Selection of Men for Right Jobs

★ Many finishing executives have heard about aptitude tests in one form or other. Some have installed aptitude test systems in their factories, while others are trying to figure out whether there is any value to these tests and in which department to use them.

We know that there are only a certain number of foremen, supervisors, craftsmen, clerks, and laborers who can be placed advantageously in a modern finishing department, with its smart streamlined organization. Many of these various types of employees have been working for a long time and are considered old hands in the finishing game. Long before things like aptitude tests were thought of, these men were the guiding spirits in many plants.

Just as new finishing techniques, materials and equipment have entered the picture in production finishing, so aptitude testing has found its place as a scientific approach toward placing new and old help in the most promising positions for their particular mental and physical personality. Also for re-examining the regular help with the aim of finding out the best traits in various individuals and, when possible, moving them to positions in which they will be most efficient and happy.

A simpler, and perhaps a better word for the name "aptitude" is "talent". By using the word "talent", many more people who are not especially sympathetic to the work "aptitude" will be easily interested in the aspects presented by these tests. The wrong man for a job, or the wrong job for a man is being increasingly changed to the right man for the job and the right job for the man. The re-

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

CLAREMONT flocks

RAYON · COTTON · WOOL

Available in various length fibres. ✓

Particles finely cut, uniform — fluffy yet filling. ✓

Brilliant colors pastel shades . . . also neutral tones. ✓

Industrial uses include soundproofing insulation surface coatings protective finishes, etc. ✓

Decorative Simulations: Suede, velvet embroideries leather and upholstery fabrics. Readily applicable to glass, wood, metal, paper cloth, etc. ✓

Details, samples and prices upon inquiry ✓

What makes this "Silent Butler" **SILENT?**

—A Rayon Flock Base!

Claremont Rayon Flocks can be applied to metal, wood, cloth, paper, etc. In various fibre lengths and in brilliant colors, the effects achieved simulate suede, velvet, velours and leathers. Functional values: Sound-deadening and Non-mar Protection . . . Decorative values: Air of luxury, Product enhancement, Sales attraction. Detailed samples and prices upon inquiry.

CLAREMONT WASTE MANUFACTURING CO.
CLAREMONT, NEW HAMPSHIRE
The Country's Largest Manufacturers of Flock

sults will be a welcome decrease in unhappy job quitters and a corresponding increase in happy employees.

Also, there will be a decrease in foremanship failures, because only men who have the proper talents will be given the honors (and the headaches) that go with the job.

Right in line with what is stated above, here is another thought: If you have in your organization a man who you want to turn into a foreman just because he is a skillful workman or a "teacher's pet", you may be doing him and your organization more harm than good if you change his position. The man may be an expert on his own immediate work and he may be well liked, but he may not have the executive ability to handle anything except a foreman's pay check. If you are interested in a man, give him a raise and keep him on the job—unless you can assure yourself beyond a doubt that this particular man is the right man for the foreman's job. —A. NORMAN.

You Can Keep Your Spray Booth Clean

★ Insurance inspectors head for the paint spray booth when looking for fire hazards because they often find a "dirty" condition there. The nature of spray finishing is such that in one day a bright and shiny spray booth can be transformed into a cubicle that looks as if a mischievous child had hurled paint at it for hours! Any spray booth that is allowed to remain a few weeks without being scraped clean will soon become so encrusted with dried over-spray that to clean it down to the bare metal would be very difficult. Human nature being what it is, many spray booths soon become covered with paint masses that are unsightly to see and an extremely dangerous fire hazard.

Good housekeeping in the paint spray booth, which means getting off the accumulations of dried paint before they bond themselves to the metal too strongly for easy removal, is a matter of safe maintenance practice as well as the concern of booth operators.

Ten years ago spray booth operators might have said that there was no good way to keep their booths clean, but today the situation is different. Several companies manufacture protective coatings that can be used to prevent the paint from adhering to the booth walls. There is even a choice as to the scientific principle involved in preventing this adhesion of paint particles to the metal walls of the booth. One company makes a detergent that is mixed with water and brushed on the walls of the paint spray booth. Later, the detergent and paint particles can be brushed down.

Petroleum products companies offer simple grease which can be brushed on the booth walls to prevent the paint from sticking. Grease is inflammable, of course, but if care is taken it can be used safely. I have in mind a firm that makes a special non-inflammable coating which can be spray-applied. Waste paint can then be sheeted away just like so much unpasted wallpaper. If the booth operator has the time and wishes to go to the additional trouble he can line his booth with kraft paper or cardboard, discarding the paper when it becomes heavily coated with waste paint.

There is hope even for those

. . . the brighter, smoother FINISH
THAT ADDS "Sales-appeal" to METAL PRODUCTS

SUNBRITE Metallic Paste Pigments produce a smoother and brighter finish that adds new beauty and sales-appeal to all kinds of metal products.

All metallic shades . . . covers more square feet per gallon and AT NO EXTRA COST.

Let us send samples for your own testing and comparison.

SUNBRITE MANUFACTURING CO.
formerly The Mitchell-Mayer Co.
3506 Market St. ST. LOUIS 3, MO.

SUNBRITE METALLIC PASTE PIGMENTS

Patent Number 2,353,058

INCREASED PRODUCTION AT A LOWER COST
ON ESSENTIAL SMALL PARTS

30 loads per hour can be processed in Lacquer or Enamel with our No. R-200 up to 75 lbs. to a load.

RONCI "SPEEDIP" WHIRL ENAMELER AND COMBINED WASHER AND DRYER

A combination dipping-whirling machine for coating large quantities of small parts. All operations are within the machine. Parts are dipped into coating material, raised and whirled. No additional tanks required. No cleaning when changing colors. Cuts costs and saves up to 90% of material.

Washer and Dryer operates on same principles.

Write for further information or submit samples to be coated.

RONCI MACHINE CO.
2 Atlantic Blvd. Centredale 11, R. I.

manufacturers who have spray booths that seem hopelessly covered with old paint. Allow the booth operator a few hours on several Saturday mornings to scrape part of his booth clean, using liberal amounts of paint remover to soften the old paint. As each wall is cleaned to the bare metal, coat it with some kind of protective coating. No time will be lost, and soon the entire booth will be protected properly. What is saved in reduced insurance premiums and in decreased fire losses will soon pay for the cost of scraping the booth clean.—ROBERT HOLDER.

Is Your Watchman Really Protection?

★ Several months ago I wrote about fire protection in finishing departments. I said that unfamiliarity with the use of equipment is an item of great importance, and that management should institute a program of training its workers in the use of fire fighting tools. I had in mind a certain company when I wrote that, because I hoped the boys in charge would see it and read between the lines.

Like the story of the great battle that was lost because of the need for a nail for the horse's shoe, neglect in training men in the proper use of fire tools, leads to other neglects. For example, the inertia will spread to other departments where men will neglect important items like safety equipment on machinery which should be safe guarded. Eventually, neglect of the safety essentials will bring a complete breakdown of care on the part of all employees, with a corresponding increase in potential hazards around the plant.

Watchmen who are the guardians of furniture plants at night and on Sundays are generally given duties other than their title would imply. They have to fire the furnaces, sweep offices, and act as janitors instead of being alert for fire or prowlers. New watchmen are shown around a strange building once. They are shown valves and shut-offs and turn-ons, alarms, bells, hand extinguishers and other fire-prevention equipment. Then there are doors, elevators, stairways, etc. It's all confusing to any man at first.

A new watchman needs a thorough training so that he will recognize and understand the various gadgets and their respective uses if and when an emergency arises. Many a Saturday and Sunday fire could have been prevented by putting on an extra man. An extra watchman for 10 years would cost around $25,000—or less due to premium reduction. One fire can cost $50,000 in a few hours. Which have you had?—NORMAN ABRAMOVICE.

College Training Program for New Finishers

★ Every craft and profession seems to develop along similar lines. First, isolated groups of men working on a given project discover phenomena applicable to their problem. Experience gained while engaged in the pursuit of their goal adds to the total knowledge. This knowledge is passed on from father to son, master to apprentice, each succeeding generation adding to the understanding of the craft. Then the craftsmen begin to exchange ideas and information. This is the period in which antagonism is dispelled and

DUPOR

CHEMICAL CARTRIDGE RESPIRATOR No. 10

Worn by thousands to guard against hazardous

PAINT SPRAY FUMES

Ideal protection against paint, lacquer, enamel vapors. Cartridges are of colored plastic. When ordering, specify WHITE for Code A; BLACK, Code B; YELLOW, Code AB. (No corrosion as with metal cartridges—no crushing and spilling chemicals as with paper cartridges.) Price $54 doz.

Sample $4.50 pp.

H. S. COVER
SOUTH BEND, INDIANA

CEL-U-LAK No. 5354

Fast drying, clear protective film for metal surfaces

5354 CEL-U-LAK gives a thin, colorless, tough adherent film of great resistance to rust and tarnish . . . Widely used for tools, hardware, sporting goods, lighting fixtures, etc. . . . Can be reduced 100% to 200% and applied by dip or spray.

The Varnish Products Co.
5204 HARVARD AVE. CLEVELAND, OHIO

the craft turns to scientific methods. Curiosity drives men to seek the "why" of a process. It is then that the craftsmen turn to the schools for assistance. Training and research programs are arranged at institutions having the facilities for such activities.

The product finishing industry is now on the threshold of such a step. While some schools offer instruction in the technology of finishes and finishing, the courses as such are inadequate. One or two lectures devoted to industrial finishes does not meet the minimum needs of the industry. The problem of what to teach, and how to teach is one for industry itself to solve. Only those men actively engaged in finishing industrial products can determine what must be taught. Likewise, research problems must be offered by industry. This is a definite challenge to the progressive element among industrial finishers and suppliers.

A study of various finishes and their application would be a prime requisite of the curriculum. The characteristics of cleaning methods would be a separate study. The fundamental chemical processes involved in finishing would be studied. Plant layout, equipment, and production control are equally important to the embryo finisher.

The theory underlying existing finishing practices would provide valuable background for a young man about to enter the finishing industry. Finally, it would be necessary to teach the technique of finishing. Such studies could be incorporated into the Chemical Engineering Department of most universities. These courses could be offered as a special sequence for chemistry students wishing to specialize.

The program would eventually supply industry with a reserve of trained men interested in developing new and better methods. However, the road is rocky, and at times the objective might be obscured. Educational leaders must be convinced of the need for a training program, as must diehards within the industry. But a bit of comfort can be had by watching the progress of the metallurgical industry which was faced with the same problems. Let us resolve to embrace a widespread training and research program.—R.E.W.

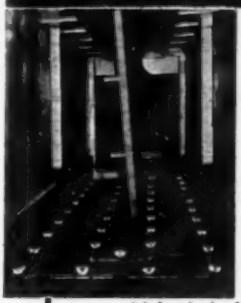
Train New Finishers

★ There is a definite scarcity of capable finishers in the furniture industry. What can be the reason? I remember when being a finisher was quite an honorable and highly esteemed profession. Most of those capable old timers could take a piece of wood and make a masterpiece of it. For example, my friend, Herman—an avid reader of INDUSTRIAL FINISHING—is one of those old-timers who is now working on production work. He is not given an opportunity nor enough time to practice his real skill.

The way a real finisher works is like a skilled surgeon. With his colors, dyes, thinners, stick shellac, assorted brushes and a few tools, plus his ingenuity, the old-time finisher is a bulwark in modern finishing methods.

Many times he is the one to whom all eyes look when there is trouble in fine finishing. He is the one who always has the calm clear understanding of how to adjust the problem at hand, why the modern uptodate manufacturers, finishing superintendents and foremen have failed to maintain younger men in

Drying Time Reduced... 76 2/3%



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That is from the records of the Canadian Top & Body Corp., which is further proof of the remarkable results that pyramid into revolutionary savings in labor, material and fuel, and the elimination of rejects. This user further testifies that the heat contained in the parts from processing the prime coat was sufficient to force dry the finishing coat—a complete operation eliminated! Get the facts on Burdett "Infra-Red" Gas Burners in connection with your heat processing.

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Mac's Fillers and Stains gave these suites a color that possessed unusual life which greatly enhanced their attractiveness.

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training for finishers can only be attributed to lack of vision.

Fellow members of the finishing field, for your own benefit as well as for that of the finishing industry as a whole, now is the time (even though quite late) to get on the beam and start doing some real good for yourself. Start a training program for finishers—and for heaven's sake, give the trainees a break, financially. — NORMAN ABRAMOVICE.

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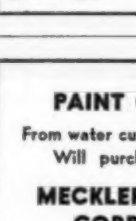
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North American Electric Lamp Co.
1030 Tyler St. St. Louis 6, Mo.

Random Comment on the Industrial Scene

(Continued from page 10)

with pigments and the necessary fillers and plasticizers. Vinylite materials have the advantage of not cracking or losing their gloss; in addition, they are waterproof, durable and easy to clean.

* * *

Advance In Aviation — General Electric has perfected a gas turbine engine, combining the use of a propeller with jet propulsion, that is expected to speed aviation progress by three to five years. It is maintained that the gas turbine engine is the answer to long-distance commercial flying speeds of 500 to 600 miles an hour.

"We see no reason why this type of engine can't be developed beyond 10,000 horsepower," explains H. A. Winne, vice-president of General Electric in charge of engineering. "And we see no reason why this power can't be attained in an engine roughly the size of one of the 2200-hp. engines now used on B-29s."

* * *

Employment and Sales—The distribution of goods is the Number One job facing our nation if reasonably high levels of employment are to be reached, warns Paul B. West, president of the Association of National Advertisers. The task, as he sees it, is to create vast new and untapped markets here and abroad, so that we will not find that the homes of all our potential customers have become glutted with our products.

If jobs are scarce and the economic outlook grim, says West, people will save as much as possible and buy only the bare necessities—and even those strictly on a price basis. However, if people

have confidence in the future, he continues, they will feel that their backlog of war savings enables them to spend their current incomes and buy on a quantity basis.

West reminds us that the selling job must be done within an economy "which has not only the great mass production facilities of prewar days, but also great additional plant capacity, plus billions of dollars worth of surplus goods coming from the Government."

* * *

Service For Readers — Subscribers to *Industrial Finishing* may obtain free tickets to leading radio broadcasts, upon request. When planning a trip to New York, drop a line to: *Lawrence H. Singer, 130 West 86th Street, New York 24, N. Y.*

Among the cooperation sponsors are: Camel Cigarettes ("The Bob Hawk Show"); Continental Can Co. ("Continental Celebrity Club"); and Eversharp ("Take It or Leave It").

Safety with Solvents

ORGANIC solvents, which are among the most widely used industrial chemicals, can be dangerous to health unless workmen are protected from inhalation of the solvent vapors and prolonged skin contact with the liquids. The control of these hazards, in addition to its humanitarian value, pays sizable dividends in dollars and cents.

Loss of solvent is avoided by controls which are designed primarily to protect health through minimizing the evaporation of volatile liquids. One of the chlorinated solvents, for instance, evaporates at a rate of about ¼-gallon a day per square foot of liquid surface

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exposed to a room temperature of about 70° F. When solvents are handled in closed systems, well isolated from the workroom atmosphere, losses of this kind are wiped out while health protection is assured. If it is necessary to use solvents in the open, specially designed work procedures and operating equipment will prevent vapors from escaping into the air, simultaneously preventing illness among workers and conserving valuable chemicals.

Poor control of organic solvents can result in a variety of health disorders. These chemicals are a frequent cause of dermatitis, one of the most common industrial diseases and one of the most economically serious. Skin disorders mean decreased efficiency, loss of man-hours and frequent visits to the medical department, sometimes over a long period.

Even moderate exposure to solvent vapors over a period of time may cause nervousness, irritability, excitability, dizziness, weakness, depression, lethargy, defects in vision, and impairment of the powers of judgment and coordination. These effects may contribute to excessive absenteeism and rapid labor turnover. Under some circumstances, mass hysteria may develop. Costly errors and accidents, seemingly due to carelessness, can sometimes be traced to solvent-vapor intoxication. Even when vapors are only sufficiently strong to cause discomfort, productivity may decrease and plant morale deteriorate.

Partial or total disability, due to disorder of the liver, kidneys, blood, or nervous system, may result from prolonged or repeated exposures to excessive amounts of vapor. Every such case of systemic illness means a serious loss of time and money.

A real adequate solvent safety program, in addition to being an important factor in decreasing solvent loss, increasing efficiency, and improving labor relations, diminishes compensation payments and helps out the cost of compensation insurance. Plant records indicating that workroom air has been analyzed regularly for solvent vapors and that solvent workers have received periodic medical check-ups may prove to be useful weapons against ill-advised demands for compensation for occupational injuries.

A bad history of solvent accidents injures a plant's reputation and can harm an entire industry. An unfortunate series of accidents with a single solvent may discredit a valuable industrial chemical and decrease the demand for it.

Factors of this kind, despite the difficulty in ascertaining their exact dollar value, may spell the difference between profit and loss in a solvent-using operation.

Thinnerless Finishes

IN THE usual industrial finishing material consisting of binder, thinner and pigment, the thinner is often a problem child. Though serving to permit application of the binder and pigment, the thinner adds little or nothing to the value of the finish. In fact, its use during the production and utilization of the finish entails a number of troublesome and intricate problems. Some of these are:

1) Since the thinner increases the total volume of the finish, it increases handling and shipping costs.

2) Its possible incompatibility

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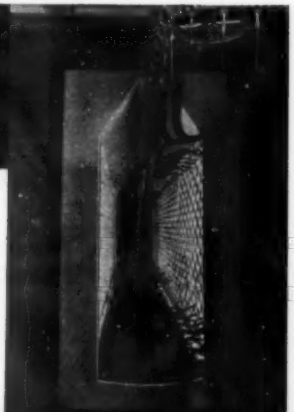

Chrysler and Dodge bumper frames are being finished with black baked out paint at remarkable rate of 300 per hour in Columbus, Ohio plant of Clark Grave Vault Company . . . in Jensen Infra-Red Oven only 21 feet long, using 864 lamps. *The secret:* Jensen "Dual-Heat"—a unique combination of *both* radiant energy heat and convection heat—*plus* Jensen "Nesting of Lamps"—a new method of *staggering* lamps to achieve far greater heat densities. **Write Jensen about your problem *today!***

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with other components of the finish involves additional formulation.

3) It must evaporate before the finish can begin to dry.

4) It is usually expensive, particularly coal tar, alcohol, acetate and similar lacquer solvents.

5) It is often hazardous to handle and toxic in nature.

6) At times it is difficult to procure.

7) It usually has a bad odor.

Technical men have long realized the shortcomings of thinner in industrial finishes. To minimize and limit its role they have attempted various methods and techniques. The use of the spray gun, for example, overcomes some of the difficulties. A sprayed finish dries faster, since the atomized thinner evaporates almost as the spray strikes the surface being coated. Furthermore, by thinning material on the job, a more cencentrated product can be shipped and sold.

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An improved version of the spray method is the hot lacquer process. This process is based on the principle that solvency increases with temperature. At elevated temperatures, higher solids and consequently less thinners, can be applied. A different approach to the same problem is the water emulsion finish. In this case, the finish contains a thinner that is more readily available and cheaper than oleo-resinous and lacquer thinners, and which possesses the additional advantages of being non-odorous and non-toxic.

The foregoing methods, while restricting the role of thinner, do not eliminate it. Industrial finishes, wholly thinnerless, can be manufactured and applied. Two cases will be cited to illustrate the work that has been done in this new field. One, the powder spray gun, was originally developed for the application of metals. In outward appearance it resembles the ordinary paint gun. The raw material, in powder form, is sucked into the gun nozzle, melted by the intense heat of ignited oxypropane and hydrogen or oxygen and hydrogen gases, and directed to the surface being painted by compressed air. Almost every metal has been successfully handled this way.

Of greater interest to the coatings industry is the statement that good results have been obtained with such organic coatings as thiokol, cardolac (a phenolic from cashew nut oil), plasticized polyvinyl butyral, polyetheylene and nylon.

A second example of the application of thinnerless coatings is *electrophoretic* finishing. This high-sounding method is based upon an even higher-sounding phenomenon, *electrophoresis*. Elec-

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trophoresis is the phenomenon occurring from the relative movement of finely divided particles under the influence of an electrical field. In practice, this means that if substances such as finely ground carbon, cellulose, rubber and other organics are suspended in water, they will be found to possess a negative charge. *By making the material to be coated the anode, that is, positively charged, and switching on the current, the negatively charged particles will migrate to the anode and coat it. In this manner, thinnerless lacquers have been applied to the inner surfaces of food cans.* Similarly, emulsions of resin, oil and drier have been electrophoretically applied to various metallic surfaces.

Despite the variance in technique, the two methods described offer evidence that thinnerless coatings are commercially feasible. Furthermore, simpler procedures and newer materials are even now widening the potentialities of this virtually untapped field. Manufacturers and finishers may find it profitable to investigate the immense possibilities of thinnerless finishes.—S. W. BRAVERMAN.

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